







the difference is Essential Information All in One Book on ALUM

What is Alum? Its History? Its Manufacture? Its Properties?

And what is its part in Papermaking?

You'll find the answers to these and other related questions in Cyanamid's book titled ALUM—Commercial Aluminum Sulfate. The facts are carefully classified under specific headings for easy accessibility and clarity. Of special interest to the paper maker is a supplementary section on Alum Handling Systems—Dry, Dissolving and Liquid, with diagrams and a table of chemical requirements for the dissolving system.

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AMERICAN Gyanamid COMPANY

PAPER CHEMICALS DEPARTMENT

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NEW YORK 20, N.Y.

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Please send me copy of ALUM — Commercial Aluminum
Sulfate.

Name

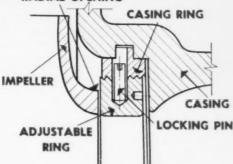
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WEARING RING DESIGN Cuts Fan Pump Costs

- Adjustable clearance keeps efficiency high
- Radial opening eliminates damage from jamming

NON-CLOGGING, ADJUSTABLE RADIAL OPENING



Here's How It Works

Clearance between the wearing ring and the impeller can be adjusted by simply removing the locking pin. turning the threaded inner ring until the correct clearance is established and resetting the locking pin. In addition to keeping efficiency high, small clearances also tend to exclude solid materials and reduce clogging problems.

With ordinary wearing rings, solid material between ring and impeller may deflect the shaft or cause the impeller to seize. With Allis-Chalmers wearing rings with radial clearance, solid materials between rings simply increase the load on the thrust bearing slightly and wear themselves free.

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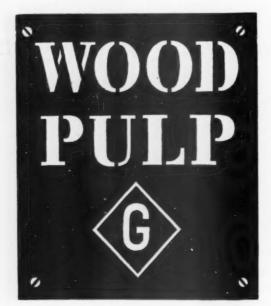
You can get help on all your stock handling problems from an Allis-Chalmers pump engineer. And Allis-Chalmers can supply the complete pumping unit - pump, motor, drive and control all of coordinated design and manufacture ... assembled and ready to install.

For more information on Allis-Chalmers pumps for paper mills, call your nearby Allis-Chalmers Authorized Distributor or representative or write Allis-Chalmers, Milwaukee 1, Wisconsin. Ask for centrifugal pump Bulletins 08B6146, 52B7112 and 52B7839.

ALLIS-CHALMERS

June 1953

Established 1886



"Man's desire for knowledge is as old as mankind. The search for truth is endless."

DR. GRAYSON KIRK President, Columbia Univ.

Pulp and Paper are potent aids and indispensable tools in man's ceaseless quest for knowledge and enlightenment.

Spanning generations of time and distance, Pulp and Paper are the foundation of progress, the recorders of truth.

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Production and Management Magazine of the Industry

> June 1953 Vol. 27-No. 6

The Cellulose Age"

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The Best Interest of North America-Pulp "Wounds" Would Also Leave Paper "Scars"

The dominant and potent position of the North American woodpulp industry in the world-this so rapidly diminishing ball in the spacesis not sufficiently understood, even in this industry.

It has happened in only a few short years. The world is looking with increasing dependence to the forests of North America. And by the same token, the North American continent must awaken to the importance of the woodpulp industry to its very survival as a free area of the world, as well as the survival of free institutions everywhere. Canadian newsprint is part of this same picture, too, and it is based upon this same resource—the only renewable resource of any major industry. And again, by the same token, one that might be dissipated and lost more rapidly than many others.

So, doesn't it follow that this North American woodpulp industry must be healthy, stable, strong enough to survive any momentary but destructive economic waves that slap against all industry and commerce? It is so important, of course, that it is a matter of life and death for free people.

So, doesn't it follow that it would behoove the new and old leadership in the woodpulp industry of North America to show the world a solid, strong front, one an industry of such magnitude deserves? It is a time for calmness, for good judgment; it is not a time for jitteriness, for actions that can only be destructive to all. We don't think it is farfetched to say that it is also a question of patriotism.

It so happens that two new market pulp mills are coming into production this September on the Pacific Coast and another in eastern Canada. At least three dissolving pulp mills also have entered the paper pulp market. In the South, a market pulp mill this year doubled capacity, three other Southern woodpulp producers will come into production next year; two more in 1955. Three of these are definitely entering the market pulp field, the others could do so.

Canada alone has a dormant bleached sulfite pulp capacity-as far as the market goes-which could, if it entered the market, completely satisfy all of North American requirements. There are other potential and now unused marketing resources in United States woodpulp mills in the South, the North and West.

Most American paper mills which are dependent on market pulp are just as anxious as the woodpulp industry itself that the North American market remain strong and stable. This is not hearsay many a paper mill executive has made this statement, in so many words, to the editors of PULP & PAPER. Any wounds suffered by woodpulp will leave scars on the paper industry, too-don't ever forget it.

There are experienced leaders in the woodpulp industry who have shown a high standard of statesmanship over many years. It is well known that they have acted time and again in the best interests of the North American pulp and paper industries, and with their own interests-at least for the moment-a secondary consideration. However, the point of the whole thing is that the best interest of all is, in the long run, the best interest of each one individually.

Safety is a Process

. . President

Vice President

Vice President

First, let us face one basic fact in this business-there is no such thing as absolute safety in anything. The more we learn to control nature, the more tricks she plays on us. The more we progress in industry and production, the more possibilities of danger arise. As we advance in transportation, there is a corresponding increase in the hazards we face.

Safety, then is not merely a thing, but is a definite process. It is a continual working toward a goal. Not only must we have the ability to stay out of trouble, but we must also have the capacity to meet and cope with trouble when it comes our way. To do this effectively we must apply the knowledge and techniques of safety education and accident prevention which are at our disposal. This immediately puts the burden of safety on each one of us. Consequently, this makes safety "everybody's business."-Ross B. Welsh, safety supervisor, P. H. Glatfelter Co.

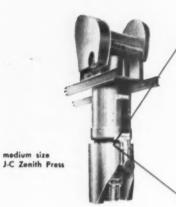
More Paper Consumers

One of the significant trends of this industry is the big expansion on paper and board mills and paper and board conversion on the Pacific Coast. The reason: The population of California, Oregon, Washington and Idaho, reached 16,059,000 in 1952. This is a 17 percent increase in just six years—since 1946. It is a 55 percent increase since pre-war 1940.

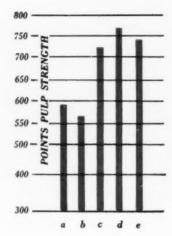
What happens

to SCREEN REJECTS

in your mill ?

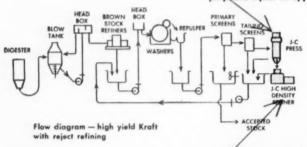


PULP CONTAINING 5%
REFINED REJECTS SHOWS
7½% MORE STRENGTH
THAN NORMAL HIGH YIELD
KRAFT—WITH HIGH QUALITY APPEARANCE RETAINED



- a, 100% rejects one pass in high density refiner
- b. 100% rejects two passes in high density refiner
- c. Normal high yield Kraft pulp
- d. 95% C & 5% A
- e. 95% C & 5% B

Points pulp strength $= 2 \times$ Mullen plus tear. (Note that pulp containing refined rejects is stronger than normal pulp and equal in appearance.)



RECENT TESTS PROVE A SUPERIOR PULP RESULTS FROM MIXING A PULP NOW LOST (REJECTS) WITH NORMAL HIGH YIELD KRAFT

J-C 015 Refiner

You can have similar savings with the simple installation of a J-C PULP PRESS and 015 HIGH DENSITY REFINER in your present system. Here's how the J-C system makes possible these remarkable savings...

After leaving the tailing screens the rejects are pressed to high consistency, processed in the specially designed 015 refiner and returned to the blow tank. A wide separation between the plates allows the 015 refiner to operate at high density with less power per ton of pulp. A striking feature of the 015-refiner is its inherent ability to produce long libers, resulting in better tear.

THESE THUS FEATURES OF THE J-C PRESS AND REFINER SYSTEM ADD UP TO EXTRA SAVINGS:

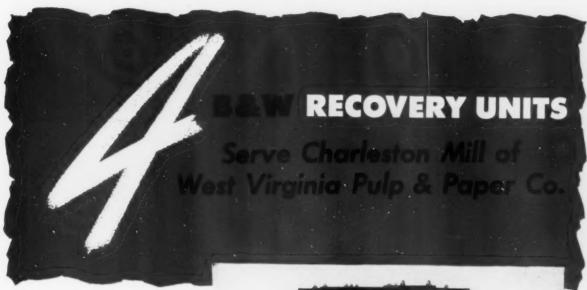
- By eliminating rejects, digester capacity is improved; cost of chemicals per ton is reduced.
- Reduces amount of dilution in black liquor.
- Output of mill is increased by amount of rejects (5%).

Our engineers and facilities are at your service. For information, write Dept. p.p.

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JACKSON & CHURCH CO. SAGINAW, MICHIGAN

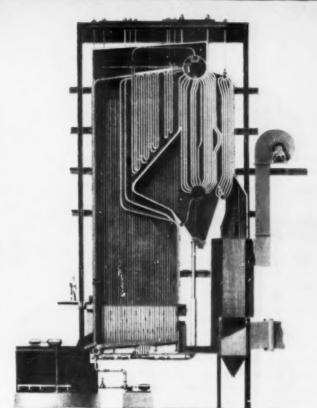
Work well done since eighty-one



Four B&W Recovery Units are establishing high chemical recovery rates at the Charleston, S. C., mill of West Virginia Pulp & Paper Co. The first B&W Recovery Unit for Charleston was ordered in 1936, and repeat orders were placed in 1940, 1945, and 1948. The four units have a combined capacity of 8.15 million pounds of steam per day.

Preventive cleaning of gas passages, practically all of which is done automatically, helps to keep the furnaces operating at high efficiency.

The performance record of B&W installations such as those at Charleston puts the B&W organization in a good position to solve your recovery problems. The Babcock & Wilcox Company, Boiler Division, 161 E. 42nd Street, New York 17, N. Y.



Typical B&W Recovery Unit



Another Mill Stops Clogging Trouble ...in Stock Lines to Jordans for example THE INSTALL

At the Excello Paper Products Co., Cincinnati, with Crane Pulp Stock Valves controlling paper pulp flow to and from Jordans.

THE CASE HISTORY

Valves formerly used failed to operate after a very short time because of pulp fibers trapped in bonnets and seats. Cleaning was a constant maintenance headache.

Only when the mill replaced with Crane No. 1425 Pulp Stock Valves were the high maintenance costs stopped. With but negligible maintenance, the Crane valves have handled the stock flow without interruption for more than 3 years. They show no effect of abrasives sometimes present in the stock; they continue to operate freely and smoothly.

As a result, the mill has now standardized on Crane pulp stock valves.

VALVE SERVICE RATINGS

Bonnetless-no body pockets

adopted as standard

MAINTENANCE COST:

negligible

SERVICE LIFE:

how in use more than 3 years

OPERATING RESULTS:

maintenance headaches stopped

AVAILABILITY:

Crane catalog item - No. 1425

Pulp and paper mills everywhere using this valve are avoiding trouble in pulp lines. It's non-clogging, self-cleaning; always easy to operate. Its exclusive Crane combing and shearing action seating design can't be jammed by pulp fibers. Pays for itself over and over in low cost, efficient control of stock flow. In patterns, sizes, and materials for every mill's needs.

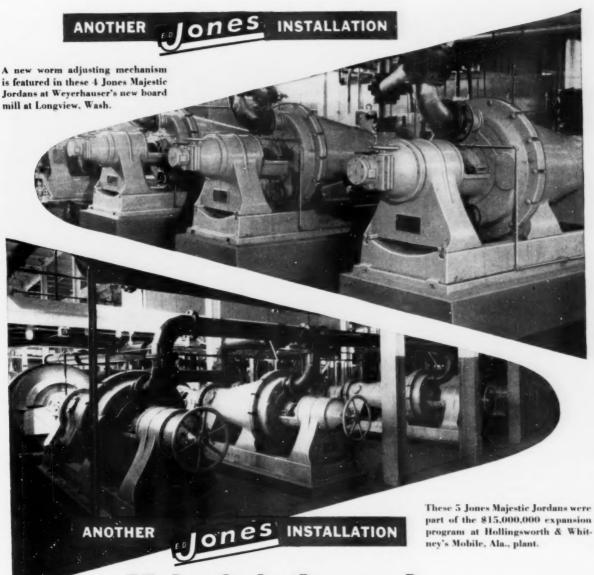


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ALVES . FITTINGS . PLUMBING .



Majestic is the word for these Jordans

The Majestic is only one of the many sizes in which Jones Jordans are made. But such is the popularity of this high-capacity work horse that it accounts for 25% of the Jones Jordans sold to date. Like all Jones Jordans it incorporates exclusive features developed from our more-than-a-century of service to paper mills. For more details, ask your Jones representative or write for Bulletin 1007-A.



E. D. Jones & Sons Company, Pittsfield, Mass.

BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

June 1953

7

An unbeatable team for temperature measurement

DYNALOG RECORDERS and DYNATHERM BULBS

FOXESIO

You can't beat this Foxboro Dynalog-Dynatherm combination for insuring better temperature measurement on any job between-100° and+600°F. It gives you every advantage of speed, accuracy, long leads, simple installation, economy, and freedom from maintenance. This is why:

The Dynalog Electronic Recorder has an exclusive variable-capacitor measuring system which eliminates slidewires, gears, cables, high speed balancing motors . . . no dead space, no batteries to standardize, no motors to service. Standard full-scale pen speed only 3 seconds. Sustained accuracy 1/4 of 1% guaranteed. Available for spans as narrow as 5°F. with full-accuracy calibration.

The Dynatherm Resistance Bulb has unique features including metal-to-metal end-contact which, when installed in a well or socket, gives a speed of response unsurpassed by any other similarly protected temperature-sensitive element. Exceptionally rugged and permanent in calibration.

These are only a few of the important advantages of this better temperature measuring system . . . available also for control of temperatures, or with Multi-Record Dynalog Recorder for up-to-6 records on one chart. Write for illustrated bulletins.

The Foxboro Company, 996 Neponset Ave., Foxboro, Mass., U.S.A.



FOXBORO

INSTRUMENTATION

FACTORIES IN THE UNITED STATES, CANADA, AND ENGLAND



She'll find more uses for COLORED tissue

Colored tissue brings a quick pickup in sales volume. In a window package that lets the color show through, it is an attractive self-merchandiser. The shopper buys *more* tissue products in color when they fit in with the decorative scheme of her kitchen, dining room or bath.

Today's color-conscious shopper turns away from colorless "look-alikes" that have long been sold as standard necessities on the grocer's shelves. With color, these "necessities" become so attractive that they are often sold as accessories—resulting in new uses and bigger retail sales.

Our technical staff will be glad to help you find the right color—and the right method of application—for any of your tissue products. For complete information, write E. I. du Pont de Nemours & Co. (Inc.), Dyes and Chemicals Division, Wilmington 98, Delaware.

PONTAMINE* YELLOW SXG PONTAMINE* FAST YELLOW RL PONTAMINE* FAST SCARLET

4BA and 4BS Conc. 150%

PONTAMINE* FAST ORANGE WS Conc. 175%

PONTAMINE* SKY BLUE 6BX Conc. 150%

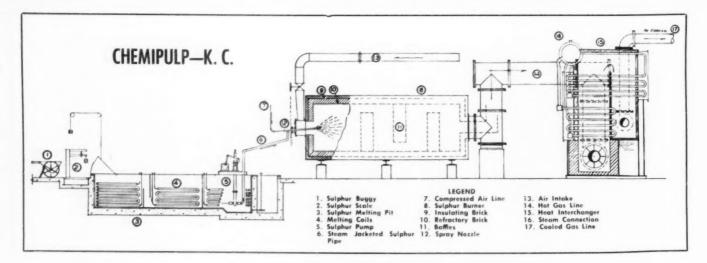
REG U F PAT OFF

More color makes more business . . . for your customers and you.

Du Pont Dyes



letter Things for Better Living



SCHEMATIC LAYOUT OF

TEXAS GULF SULPHUR CO. SPRAY TYPE SULPHUR BURNER

SULPHUR BURNING in the SULPHITE PROCESS

The most important single item in the sulphite acid making process is an efficient and easily controlled sulphur burner. The inefficient operation of a burner results in sulphur losses due to excessive sulphur trioxide formation, sublimation, and non-uniform and low strength acid due to non-uniform and low strength gas. The difficulties incident to shutting down and starting up the ordinary type of sulphur burning equipment in use in the sulphite industry are well known to every one.

The Research Department of the Texas Gulf Sulphur Company invented a burner primarily adapted to use in the sulphite pulp industry. It has been developed commercially in two types, horizontal and vertical, and is in general use in the sulphite industry. In this type burner, a gas strength of 19.5 to 20.0 per cent has been maintained without sublimation.

It is a matter of common knowledge that the combination of high gas strength and high temperature results in the prevention of sulphur trioxide production, but prior to this type burner it has been impossible to approximate the ideal condition. The design of the Texas Gulf Sulphur Company spray burner produces temperatures of from 2,400° to 2,700° F. at all times. Such high temperatures and gas strength keep the sulphur trioxide loss at an incredibly low figure. The saving in sulphur through the reduction in sulphur trioxide formation from the normal figure of about 1½% will cover the interest and depreciation charges on the burner.

Maximum gas concentration is reached within 45 minutes from the starting time after a 32 or 48 hour shutdown; starting with a cold burner, maximum concentration is reached in less than 2½ hours. Shutdown is instantaneous; it is ac-

complished by shutting off the sulphur supply. This means that the acid plant produces a uniform and high strength acid from starting up to the moment of shutting down.

The operation of the Texas Gulf Sulphur Company spray burner requires little attention. The molten sulphur is stored in a pit and pumped to the burner with a submerged metering pump. Rate of combustion air is set by means of blowers or vacuum pumps, dependent upon the type of equipment in the acid plant. The sulphur is correctly proportioned by variation of the stroke of the metering pump. As the sulphur enters the burner, it is atomized with a small amount of compressed air at 60 to 90 pounds pressure. The atomized sulphur burns rapidly and completely in the same manner as atomized oil in an oil burner.

If dirt, cinders, or other foreign matter finds its way into the sulphur supply and partially plugs the atomizing device, it can be replaced in less than one minute.

The complete installation consists of five major parts: the pit for melting and storing the molten sulphur, the metering pump, the atomizing device, the burner proper to complete combustion, and

the waste heat boiler. The pit, which holds sufficient sulphur for two days' operation, is set in the floor either adjacent to the burner or, if conditions demand, at a distance. It is lined with steel plate and has steam coils on the side. The burner proper is a cylindrical steel tank in a horizontal position lined with insulating and refractory material. Suitable baffling is provided to produce turbulent gas flow after the initial mixing of air and sulphur. The waste heat boiler is producing steam at the minimum rate of 2,500 pounds per hour at 190 pounds pressure at a combustion rate of 12 tons of sulphur per 24 hours, and with feed water at 212° F.

The saving represented by the production of steam through the waste heat boiler will naturally vary depending upon the fuel cost at each individual mill. Based on present fuel costs, the boiler installation should pay for itself within a period of 18 months on the basis of steam production. The saving in sulphur through the avoidance of the formation of sulphur trioxide is believed to be sufficient to cover interest and depreciation charges on the sulphur burner proper.

Arrangements may be made to inspect both the burner and waste heat boiler in operating mills.



This article is the first of a series being published by Chemipulp Process Inc. in PULP & PAPER magazine in the interest of generally improving the sulphite process. Correspondence regarding or discussing the articles will be welcomed.

A LIMITED NUMBER OF A REVISED EDITION OF "CHEMIPULP SULPHITE MILL OPERATION," THE HANDBOOK OF PRACTICAL OPERATING PROBLEMS WILL BE AVAILABLE UPON COMPLETION OF THIS SERIES OF ARTICLES.

Chemipulp Process, Inc.

CHEMIPULP PROCESS LTD. CRESCENT BUILDING MONTREAL, QUE. HEAD OFFICE 500 WOOLWORTH BUILDING WATERTOWN, N.Y. A. H. LUNDBERG 308 ORPHEUM BUILDING SEATTLE, WASH.



Pennsalt Sodium Chlorate is produced in volume in this newly-expanded Pennsalt plant at Portland, Oregon.

for whiter, brighter pulp turn to PENNSALT SOUND GROSSES

The advantages of Chlorine Dioxide as a bleaching agent are well known. This chemical, produced from Sodium Chlorate, bleaches pulps for certain purposes more advantageously than ordinary commercial bleaching agents. Furthermore, Chlorine Dioxide is a selective bleach. It has the power to destroy wood specks and bark specks, thus giving a cleaner end product—yet it does not impair the pulp's physical or chemical properties. This selective bleaching agent also enables a pulp mill to make use of a higher percentage of the wood raw material.

PRODUCED IN YOUR OWN PLANT

In a properly constructed generator, the manufacture of Chlorine D'oxide begins with Sodium Chlorate—the chemical that Pennsalt produces at its Portland, Oregon, plant. By treating Sodium Chlorate with sulfuric acid, and sulfur dioxide or organic reducing compounds, Chlorine Dioxide may be generated at the bleach plant site.

A FREE TECHNICAL SERVICE

To help you take advantage of this new process, Pennsalt offers both chemical and technical assistance. Pennsalt specialists will gladly aid you in designing a generator and other equipment, and thoroughly acquaint you with this new bleaching process.

As for the Sodium Chlorate—key chemical in this method—Pennsalt supplies it in commercial 99% grade. It is shipped as white crystals from Portland, Oregon, in 110 lb. one-way drums and in tank cars.

Pennsylvania Salt Manufacturing Company of Washington
Tacoma, Washington • Portland, Oregon



BOLTON Fillings last longer in any Jordan



High quality precision-made **Bolton** fillings will last longer in any Jordan, whatever its make or design. Technical skills and knowledge, gained through many years of experience, go into the selection and treatment of the metals and woods. Meticulous attention to the details of machining, assembly and fitting insures maximum life and satisfactory service. **Bolton fillings** are made for any design of Jordan. In addition to those listed, other metals and separators are available for individual requirements.

BOLTON SPECIAL HEAT TREATED STEEL

Metal specially selected and heat tracted by Bolton for use where service is hard. Tough, terrifically hard steel stands up under severest use and abuse.



BOLTON PHOSPNOR BRONZE

Particularly adaptable where brushing and hydration are required, and minimum cutting is needed. This Phosphor Bronze is practically immune even to extreme acidity. The edges of a set of Phosphor Bronze fillings will last for years under acid conditions that wash away steel edges in months.



BOLTON SPECIAL STAINLESS STEEL — A true stainless steel specially hardened, with corrosion resistance well beyond requirements in the paper industry.

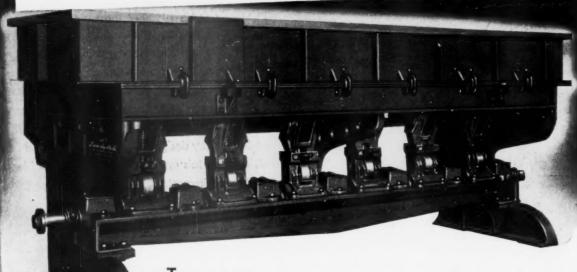
"He who buys
BOLTON
buys best"

John W. BOLTON . & Sons, Inc.

Lawrence, Massachusetts, U.S.A.

Better Capacity! Better Efficiency! with Sandy Hill

Packer Superscreen



in choice of 3 types of drives

The choice of scores of paper mill operators who insist on "the best pulp screen the trade has to offer." Among 1952's accomplishments were two complete board mill installations in the southwest, two in the middle Atlantic states and one in Pennsylvania.

Discriminating mill men repeatedly specify Packers because their experience has proved that Packers:

- Produce higher tonnage of cleaner pulp per plate.
- Offer a more reliable medium for grading and carding fiber bearing stock on either board machine or fourdrinier.
- Require less maintenance and care, resulting in lower operating cost.
- Have sturdy construction that assures a long, trouble-free life.



Packer Superscreen Model LH

This model has a totally enclosed, noiseless roller shoe unit with continuous lubricating system. No oil leakage.



Packer Superscreen Model F

Electric steel casting roller shoes and steel forging cams require less horsepower, lessen vibration, lower maintenance cost, Replacing wooden blocks eliminated.



Packer Superscreen Model T

The original Packer design with hardwood or composition toe blocks for the lowest cost installation.



Sandy Hill's New Brochure of Pulp and Paper Making Machinery is available on request.

The Sandy Hill Iron & Brass Works

Hudson Falls, N.Y.

Manufacturers of Adjustable Cylinder Vats Cylinder Paper Machines Kamyr Pulp Grinders Dandy Roll Drives Machinists and Founders Specializing in Pulp and Paper Mill Machinery Duick Opening Gate Valves Neilson Slice

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Kamyr Stock & Pulp Pumps

Kamyr Stock & Pulp Pumps

Four

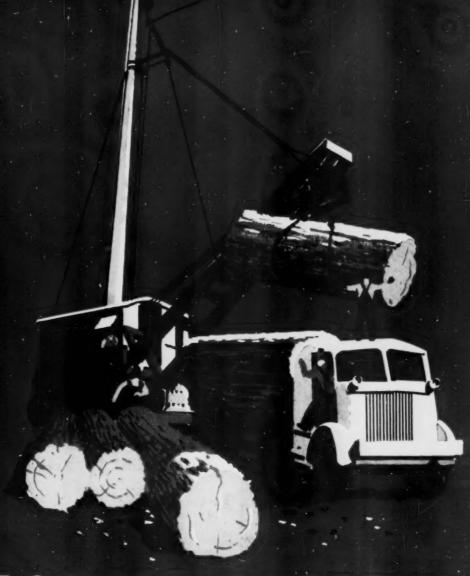
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Castings
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Scofield Felt Conditioners
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Associated with Canadian Vickers, Ltd., Montreal, Builders of Sandy Hill Designed Machinery in Canada



FOREST RESERVES

for the Pictile Mornwest, and its appointant extend from the Pictile Mornwest, and its appointant extend from the felling of the frees to the final delivery of finished pulp, five locals completely utilized; modern hydraulic bankers and chippers result in raducing waste in wood utilization by 20%, and wastes are fully utilized: I the alcohol and by products plants.

PUGET SOUND

PULP AND TIMBER COMPANY

Umpty-thousand tons of HOOKER CAUSTIC



CONVEYORS feed salt to brine tanks for caustic soda and chlorine production in Hooker electrolytic cells.

We will produce more caustic soda this year than ever before in our history.

This would be meaningless, except that it expresses our belief in the future of the chemical industry—and our readiness to keep growing with it as one of your major suppliers of chemical raw materials and intermediates.

Today, more than ever, you can count on Hooker for dependable supplies of caustic soda, chlorine and many other industrial chemicals.



CAUSTIC SODA DISTRIBUTING STATION

Reasons for Specifying HOOKER Caustic

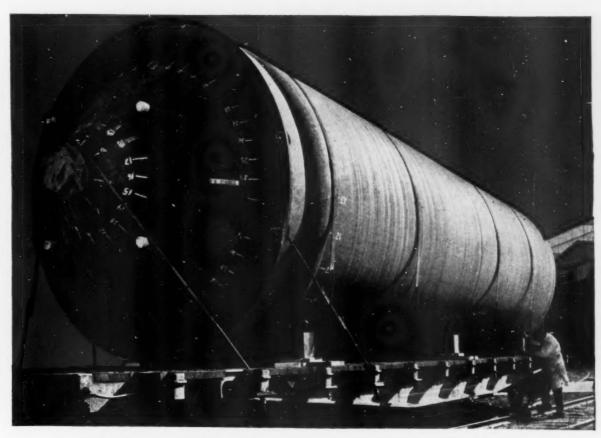
- 1 Large-tonnage production—The biggest in nearly 50 years—means dependability of supply for you.
- 2 Quality caustic in the form to meet your needs 50% and 73% liquid; flake; solid. Drums, tank cars, barges. An impressive background of experience in serving large users of caustic.
- 3 Technical service—Willing, competent help in safe handling and use of caustic in your process. Experience gained from serving 30 industries is at your disposal.
- 4 Fast, dependable deliveries—More facilities than ever before for getting caustic to you, on schedule.
- 5 If you use caustic in ||c|| quantities, you can now purchase caustic from a Hooker plant, warehouse or jobber near you. Write us for name and address of your nearest Hooker jobber.

FOR ANALYSES, PRICES, DELIVERY INFORMATION, write Hooker Electrochemical Company, 15 Forty-seventh Street, Niagara Falls, N. Y.—or phone your nearest Hooker sales office.

- From the Salt of the Earth

HOOKER ELECTROCHEMICAL COMPANY
NIAGARA FALLS . TACOMA . NEW YORK . CHICAGO . LOS ANGELES

HOOKER CHEMICALS



10' 7" diameter, 42 feet high sulphate digester, weighing 130,000 lbs., made of Oxygenated Rimming Steel for corrosion resistance, leaving A. O. Smith Plant in Milwaukee.

Now we're making Sulphate Digesters of Oxygenated Rimming Steel*!

A. O. Smith Research in Metallurgy and Welding makes another significant contribution to the Paper Industry . . .

Corbon steel with low silicon content, oxygenated by rimming, to obtain desired corrosion resistance, now becomes ideal material... in the hands of A. O. Smith technicians... for fabricating sulphate digesters.

Digesters made of this special steel, 2 to $2\frac{1}{2}$ inches thick, were first developed by A. O. Smith. They have been in service for over two years with American Box Board Company, Crown Zellerbach Corp., Longview Fibre Company, Rayonier Incorporated, Union Bag & Paper Corp., West Virginia Pulp & Paper Company, Weyerhaeuser Timber Company.

Successful application to sulphate digesters is due to the investigations by the A. O. Smith metallurgical research laboratories, in cooperation with the A. O. Smith welding research laboratory.

Seams are welded with A. O. Smith electrodes that have proven to have the same corrosion resistance as the special parent metal . . . thus giving assurance of uniform corrosive characteristics throughout the digester.

Consult us on your process equipment problems.

Contact the nearest A. O. Smith district office
listed below.

*Patent Applied for

Research and Engineering Building



A.O. Local

A.O.Smith

Chicage 4 * Cleveland 15 * Dallas 2 * Denver 2 * Houston 2 * Los Angeles 22 Midland 5, Taxas * New Orleans 12 * New York 17 * Pittsburgh 19 San Francisce 4 * Seattle 1 * Tules 3 * Washington 6, D.C. International Division: Milwaukee 1, Wisconsin, U.S.A.

LANGSTON Slitters and Winders Day after day, year after year, these sturdy machines turn out solid, clean cut rolls of superior quality. Maintenance and repair costs? Mighty low! SAMUEL M. LANGSTON CO. CAMDEN 4, N.J.

TAKE YOUR CHOICE



These new sizes are readily adaptable to all paper making requirements. Paper and board mills throughout the country are reducing costs and improving sizing with this new Hercules fortified size.

HERCULES POWDER COMPANY

Paper Makers Chemical Dept., 965 King Street, Wilmington 99, Delaware



SIZING

*TRADE-MARK

June 1953

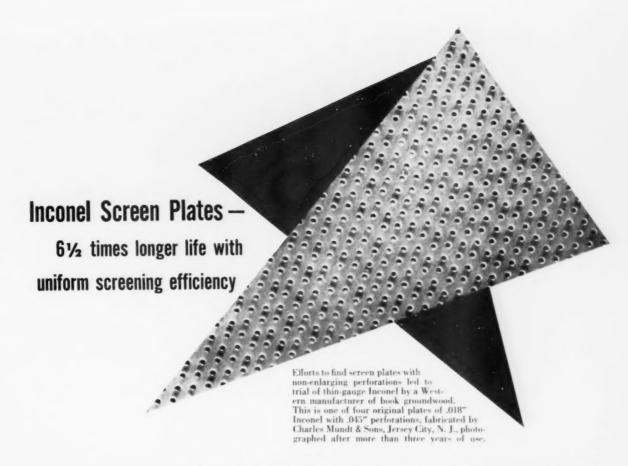
19

POWELL RIVER

UNBLEACHED SULPHITE PULP

> STRENGTH COLOR SERVICE DEPENDABLE SUPPLY

POWELL RIVER SALES COMPANY LIMITED ———



Before they could produce high grade book groundwood from Western softwoods, Crown Zellerbach Corp., W. Linn, Oregon, had to solve several problems. Short screen plate life was one of them.

Screen plates were corroding beyond use in less than 5 months. Screening efficiency was dropping throughout the service life, as corrosion enlarged screen perforations.

Even heavy 17-gauge plates didn't do the job. Of course, they minimized breakage and slowed down the rate at which the holes enlarged — but not enough. As a result, volume and consistency of stock varied—and stock quality with it.

In looking for plates whose perforations wouldn't enlarge — whose screening efficiency would stay high and constant — the mill installed a trial set of four Inconel® plates in October, 1949. They were light (only .018") — so light, that you could curl a corner around your finger. But with solid backing at the frame ribs, these Inconel plates turned in an amazing performance.

On the strength of it, the mill later installed 36 more Inconel plates, bringing the total to 40. Of 14 that eventually failed, none gave less than 16 months of continuous service—and nine were on the job 25 months or more. Two of the original trial set lasted more than 36 months! What's more, the mill reports the Inconel plates still in use gave "an average of 26 months of service as compared with 3 to 5 months" for previous plates. They have found "no... measurable enlargement of the perforations even after 36 months of continuous use."

They estimate that they'd have replaced 300 of the old-style plates since 1949—if they hadn't changed to Inconel. As it is, they've replaced only 14—a clear saving of 286 plates. And they've improved the quality of their book groundwood in the bargain.

Next time you need screening equipment, think what Inconel can mean...in improved product quality, lower operating and maintenance costs, lighter weight construction, or longer service life.

It is advisable to place equipment orders with your supplier well in advance of scheduled use. Distributors of Inco Nickel Alloys can supply the latest information on availability from warehouse and mill. The International Nickel Company, Inc., 67 Wall Street, New York 5, N. Y.

Inco Nickel Alloys

MONEL® - "R"® MONEL - "K"® MONEL - "KR"® MONEL
"S"® MONEL - INCONEL® - INCONEL "X"® - INCONEL "W"® - INCOLOY®
NIMONICS® - MICKEL - LOW CARBON NICKEL - DURANICKEL®



COMPLETE SERVICE

Design

Installation

Maintenance

Repair

Corrosion-Resistant

TILE TANKS
and
LININGS

for Acid and Alkali Conditions

PULP MILL

SULPHITE

Digester Linings for Calcium,
Ammonia, Soda and Magnesia Base
Combustion Chamber, Acid Tower,
and Settling Tank Linings
Acid Storage Tanks

PAPER MILL

Special Process Chests Stock Storage Chests Wire and Couch Pit Linings

KRAFT OR SEMI-CHEMICAL

Combustion Chamber and Absorption Tower Linings Digester Linings Bleach Plant Tanks and Linings Pulp Storage Chests

CHEMICAL PLANT

Acid and Alkali Storage Tanks Pickling Tanks Tower Linings and Packing

AUTHORIZED APPLICATORS FOR SARAN RUBBER & TYGON LININGS

SINCE 1884 Specialists in Design Installation and Servicing of Linings and Tile Tanks

STEBBINS

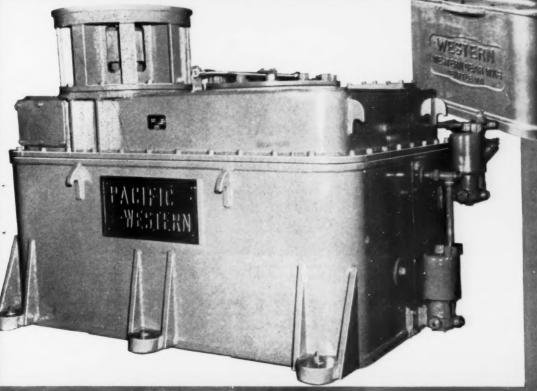
SEMCO

Engineering and Manufacturing Company, Watertown, N. Y.

STEBBINS ENGINEERING CORP. — TEXTILE TOWER, SEATTLE, WASH
CANADIAN STEBBINS ENGR. & MFG. CO., LTD. — CASTLE BLDG., MONTREAL, CANADA

Agitator Drives...

built for years of economical, heavy-duty service!



Pacific-Western TV-03, various talpus references univolunt



Eleven double reduction Pacific-Western vertical agitator drives with 75 HP motors occupy minimum floor area in installation with capacity of 450 tons of bleached pulp per day. Above right shows triple reduction units, part of same installation, mounted high on chlorination tower, and in foreground on low density caustic tower.

Write for Booklet No. 5308 Address your request







Double reduction agitator drives for caustible achers ... 75 HP motors; 70.85; 1 ratio 1750 RPM.



Pacific-Western Type DV-60 agitator drives shown in pulp bleaching tank service in a Pacific-Northwest mill.

Pacific-Western DV-60, vertical double reduction drive unit

Here are 11 Reasons why Pacific-Wastern Agitator Drives are best for YOUR needs!

CHECK THESE OUTSTANDING FEATURES .

- Vertical electric drive saves floor space.
- Heat-treated helical gears are designed for years of continuous trouble-free operation...
- Adapters for motors with vestical NEMA frame and solid shaft ring bess sliminate separate motor base...
- Full range of ratios, from 12 to 1 through 500 to 1 with DV or TV units.
- * Heat-treated alloy steel shafts provide long life and dependability .
- Low speed shafts equipped with heavy duty tarered roller bearings aliminate need for separate thrust bearings . . .
- * Lubricating systems especially designed to meet every application . . .
- Scavenging pump systems eliminate all possibility of oil leakage around low speed shaft . . .
- Modern vertical drives are considerably less expensive than old style right-angle drives...
- Simple, compact design and construction reduces installation and maintenance cost ...
- These outstanding features have given Pacific-Western Agitator Drives universal acceptance throughout the Pulp Industry.

Write, wire or phone your nearest Pacific-Western effici

2006 E. Imperial Highway, Lynwood (Los Angeles County), California 1835 Folsom St., San Francisco 3, California Selmont (San Francisco Peninsula), California 117 N. Palmer St., Houston 3, Texa

Representatives — H. 2005 Division St., Spokane, Washington 300 S. E. Oak St., Portland 14, Oregon Room 212, Ross Bldg., Denver 2, Colorade 500 South Ervay Street, Dallas, Texa Engineering & Machinery Ltd., 1306 W. Broedway, Vancouver, B.C. WESTERN GEAR WORKS

Manufacturers of PACIFIC-WESTERN Gear Products

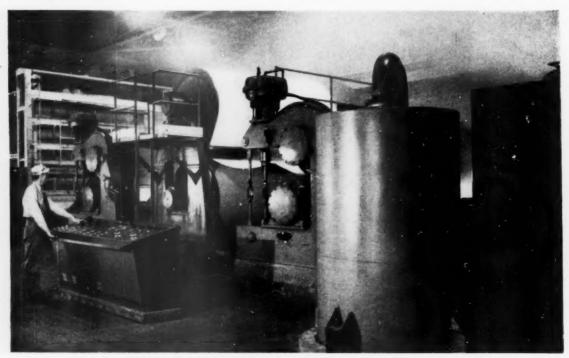
Pacific Gear & Tool Works

Plants: Seattle
San Francisco
Belmont
(S. F. Peninsula)

(S. F. Peninsula)
Lynwood
(Los Angeles County)
Houston

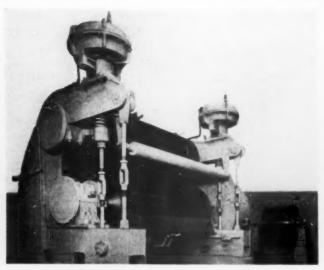


HIGH DENSITY • HIGH PRODUCTION

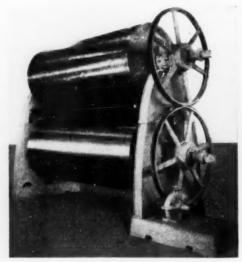


Built to exacting specifications for individual requirements in various sizes up to 156"—for as high as 300 tons per day per machine! Note air-loading for all press rolls.

IMPCO FELTLESS



Main air-loaded press sections with $36^{\prime\prime}$ diameter grooved press rells—shown here from tending side.



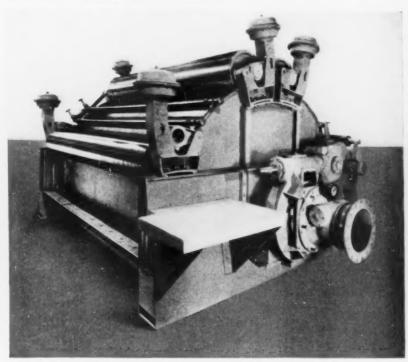
View from drive end of $60^{\prime\prime}$ diameter pre-dryer section.

IMPROVED NASHUA,

RUGGED DEPENDABILITY

Producing sheet densities in the range of 50% to 60% A.D. on all types of chemical, semi-chemical and ground-wood pulps—the Impco Feltless Wet Machine contains a number of features new to wet machines all combined to give you long-lasting, top quality service.

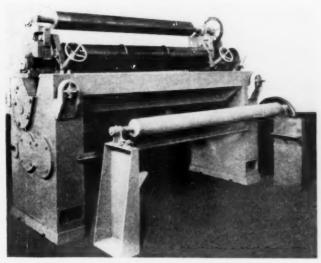
Air-loading for all press rolls—extraheavy enclosed herringbone gear drives on the press sections—new inverted type sheet cutters are but a few of the advantages incorporated in this exceptionally rugged feltless wet machine manufactured by Impco.



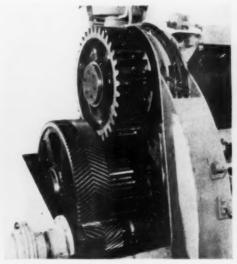
View from valve side of 8' diameter vacuum thickener for wet end showing gir-landed forming and press rolls.



WET MACHINES!



The complete unit can be installed prior to dryer sections or this Impco Slitter and Cutter can follow the final press to produce sheets of any desired size for shipping wet.



Main press drive case disassembled to show rugged herringbone gear and pinion and special long-tooth synchronizing gears.

MACHINERY, INC.

NEW HAMPSHIRE

Sherbrooke Machineries Limited, manufacture similar equipment in Canada J-30

CAPT. FREEMAN'S CONTRIBUTIONS CITED

CAPT. MILLER FREE-MAN, whose role in Pacific Coast industries was cited at University of Washington ceremony.



PRESIDENT HENRY SCHMITZ of the University of Washington told a gathering of scientists, federal and state officials and other guests in Seattle Apr. 15 that "the contributions of Capt. Miller Freeman to the scientific conservation of Pacific Coast resources have been outstanding."

The occasion was the formal presentation to the University's School of Fisheries of a complete set of 50 years' volumes of PACIFIC FISHERMAN by Capt. Freeman, president of Miller Freeman Publications. He was described as "father" of the Fisheries School.

Dr. Schmitz, in his address, had in mind Capt. Freeman's interests over 50 years in several major industries in which he founded publications, including PULP & PAPER 27 years ago. But he referred on this occasion particularly to Capt. Freeman's activities in fisheries-his long, often single-handed, campaign for an international salmon treaty, successful after 25 years (in 1938); his important services on the International Halibut Commission; his sponsoring of a state planning commission; his services as chairman of the Pacific Fisheries Conference for the past six years; and his signal services in relation to Japanese fisheries, warning of their political import long before World War II, and in obtaining a treaty in the post-war era.

Capt. Freeman was closely identified with the development of the now strong and sound market woodpulp industry on the Pacific Coast, which now produces, mostly in Washington and British Columbia, over one-third of all the market woodpulp required by U. S. paper mills. He was a director of Rayonier Inc., and, in founding PULP & PAPER at that critical time, encouraged the growth of other market pulp industries in the face, at times, of actual State Department and other federal opposition. This was before the need of a North American industry was dramatically demonstrated when German submarines cut off Scandinavian supply and the essential war uses for pulp were understood in government.

THIS CARTOON, by Carey Orr, in The Chicago Tribune, graphically epitomizes what many leaders of this industry foresee.

This is from PULP & PAPER's report earlier this year—reflecting management opinion at Paper Week: "It was the longer viewers who said 'we have our work cut out for us,' the end of the excess profits tax will mean industry is going to have to show its true worth and real salesmanship is going to pay off... One observer said 'we'll know when we come back next year who are the really good presidents, executives and operators'."

THE OLIN WOODPULP MILL

MERCHANTS in the area around Sterlington, La., are expecting to see construction crews start clearing the site for the new Olin Industries projected nitrating-dissolving pulp mill a couple miles west of Spencer, and about five miles north and west of the Ouachita River bridge at Sterlington.

The location is reached via an old gravel road that formerly ran from Ouachita City, an early times steamboat landing on the river, to Farmerville. On a new graded dirt road, about three-quarter mile north of the old gravel road, is a United Gas Co. pipeline, and about 250 yards left is a capped test water well drilled for Olin.

The area and the projected site itself bear a heavy cover of uneven aged mixed pine and hardwood stand. The undercover is on the dense side, and the stand includes some excellent merchantable pine timber. In type, it is characteristic of much of Union Sawmill Co. (Olin's Frost Lumber Industries subsidiary) forest land holdings. The location is in heavy natural gas producing territory.

Sterlington is only 16 miles by paved road north of Monroe, for many decades one of six important communities in Loui-

MILLAL SPENCER LA.

SITE SMI STERLINGTON

16 Mi.

To Shreveport

98 Mi.

MONROE, LA.

siana. Monroe is a service center for paper mills at Hodge, Monroe, Crossett, and Camden. The U. S. Engineers operate locks on the Ouachita river at Sterlington. Here, also, is a major power plant of Louisiana Power Co., and a large plant operated by Commercial Solvents Corp.

Olin's Frost Lumber division headquarters are at Shreveport, La.

1953 - YEAR OF THE GO-GETTER



REPRESENTATIVE SALES-EARNINGS

The Largest Companies and Others of All Different Types

PULP & PAPER presents in the table on this page, the sales and earnings record of a selected group of pulp and paper companies. The list shows the operating results of 35 companies, representative of all divisions of the industry.

The largest paper companies are all included—at least the top ten. Smaller companies and some converters also are included. The selection of these necessarily was an arbitrary one.

The attempt, at least, is to afford at a glance a broad view of the results of the companies in all divisions of the industry.

An attempt also is made to group them, in a rough way, according to their type of production. Companies are becoming more and more diversified, which makes this grouping difficult.

The first four are market pulp producers. MacMillan & Bloedel's report, however, also reflects its worldwide lumber and other wood products business. A couple others in this group now have byproducts or additional products.

Next is an attempt to group fully integrated Northern mills. Their products vary, of course. Some also make some market pulp—Mead, Marathon, KVP, Abitibi, Scott. Crown Z and Great Northern are important in newsprint, but make other papers too. Important book and magazine paper producers listed in this group are Consolidated Water Power, Kimberly-Clark and Crown Z, but they all make a variety of other paper.

Next are companies with integrated operations in both North and South. International is, of course, by far the largest, with newsprint mills in Canada, book and other mills in the North, market pulp and pulpboard and other products in the South. Mead, West Virginia, Champion and St. Regis are important in the book paper field, but make other products, too. Diamond Match's report, of course, also reflects converted paper and wood products.

Next is a group with mills exclusively in the South.

This is followed by a group of integrated paperboard mills.

Some of the preceding "Southern" group could just as well have been in the paper-board group and vice versa. But their products are not all paperboard. Southland Mills, for example, is primarily newsprint; its board output is secondary.

Next is a miscellaneous group which seemed interesting to include. They are in specialty fields. Rhinelander, Glatfelter, S. D. Warren and Hammermill are partially but substantially integrated. Allied is an example of a non-integrated company, representative of a considerable number of this type.

And finally there are two interesting, successful and important converters— Dennison and International Cellucotton.

REPRESENTATIVE PULP AND PAPER COMPANIES—SALES AND EARNINGS

(Prepared for Pulp & Paper by Cyrus J. Lawrence & Sons, members New York Stock Exchange, from statistical services and published reports. While the figures are believed to be correct no guarantee is given as to their accuracy.)

1952

Year ended Dec. 31, 1952, except where another year-end date is shown after the name of the company in left column. Sales and income figures are in thousands of dollars.

Composition Composition		Net Sales	Income Bef. Taxes	% Of Sales	Net Income	Net Per Share
Puget Sound Pulp & Timber Co. 20,292 6,660 32.8 2,832 3.64 Rayonier Inc. 78,263 23,926 30.6 10,986 4.90 MacMillan & Bloedel Co., Ltd. (9/30) 150,875 30,043 19.99 13,818 2.68 Abitibi Power & Paper Co. Ltd. 107,382 21,370 19.9 9,098 2.02 Crown Zellerbach Corp. (1/31/53) 248,962 46,351 18.6 22,078 7.11 Eastern Corp. 21,980 1,234 5.6 1,008 2.68 Kalamazoo Vegetable Parchment Co. 43,014 3,533 8.2 1,609 2.14 Kimberly-Clark Co. (1/31/1953) 158,304 19,024 12.0 8,720 4.06 Marathon Corp. (10/31) 86,445 13,694 15.8 7,074 2.28 Great Northern Paper Co. 42,734 10,663 24,9 4,637 4.64 Diamond Match Co. 96,130 5,717 5.9 4,217 3.20 Consolidated Water Power & Paper 54,465 11,891 21.8 4,424 3.48 International Paper Co. 631,421 143,689 22.8 52,126 5.75 Mead Co. 100,305 12,954 12.9 5,954* 4.97* St. Regis Paper Co. 182,712 24,240 13,3 12,702 2.32 Scott Paper Co. 146,903 25,782 17.6 10,707 3.44 Hudson Pulp & Paper Co. (10/31) 108,933 16,871 15.5 9,471 9,89 Southland Paper Mills, Inc. 19,629 7,449 37.9 2,999 6.46 Camp Mfg, Co., Inc. 20,192 6,380 21.1 3,046 3.20 Southern Advance Bag & Paper 18,990 5,553 29.2 2,482 2.80 Union Bag & Paper Corp. 95,998 24,216 25.2 11,060 6.24 Container Corp. of America 178,408 30,383 17.0 10,283 5.01 Gair (Robert) Co., Inc. 107,571 18,150 16.9 6,069 2.66 Gaylord Container Corp. 85,798 15,718 18.3 8,117 3.01 Sutherland Paper Co. (9/30) 18,795 3,183 16.9 1,444 2.67 Hammermill Paper Co. 28,321 1,648 5.8 1,208 1.38 Glatfelter (P.H.) Co. 36,501 4,172 11.4 1,694 1.95 International Cellucotton Prod. 126,837 12,913 10,2 5,367 2.26 Dennison Mfg, Co. 35,604 4,700 13.2 5,367 2.26		(000)	(000)		(000)	
Rayonier Inc. 78,263 23,926 30.6 10,986 4.90 MacMillan & Bloedel Co., Ltd. (9/30) 150,875 30,043 19.9 13,818 2.68 Abitibi Power & Paper Co. Ltd. 107,382 21,370 19.9 9,098 2.02 Crown Zellerbach Corp. (1/31/53) 248,962 46,351 18.6 22,078 7.11 Eastern Corp. 21,980 1,234 5.6 1,008 2.68 Kalamazoo Vegetable Parchment Co. 43,014 3,533 8.2 1,609 2.14 Kimberly-Clark Co. (1/31/1953) 188,304 19,024 12.0 8,720 4.06 Marathon Corp. (10/31) 86,445 13,694 15.8 7.074 2.28 Great Northern Paper Co. 42,734 10,663 24,9 4,637 4,64 Diamond Match Co. 96,130 5,717 5.9 4,217 3.20 Consolidated Water Power & Paper 54,465 11,891 21.8 4,424 3.48 International Paper Co. 631,421 14	Brown Co. (11/30)	\$ 65,638	\$ 7,676	11.7	\$ 4,397	\$1.69
MacMillan & Bloedel Co., Ltd. (9/30) 150,875 30,043 19.9 13,818 2.68 Abitibi Power & Paper Co. Ltd. 107,382 21,370 19.9 9,098 2.02 Crown Zellerbach Corp. (1/31/53) 248,962 46,351 18.6 22,078 7.11 Eastern Corp. 21,980 1,234 5.6 1,008 2.68 Kalamazoo Vegetable Parchment Co. 43,014 3,533 8.2 1,609 2.14 Kimberly-Clark Co. (1/31/1953) 158,304 19,024 12.0 8,720 4.06 Marathon Corp. (10/31) 86,445 13,694 15.8 7,074 2.28 Great Northern Paper Co. 42,734 10,663 24.9 4,637 4,64 Diamond Match Co. 96,130 5,717 5.9 4,217 3.20 Consolidated Water Power & Paper 54,465 11,891 21.8 4,424 3,48 International Paper Co. 631,421 143,689 22.8 52,126 5.75 St. Regis Paper Co. 182,712	Puget Sound Pulp & Timber Co.	20,292	6,660	32.8	2,832	3.64
Abitibi Power & Paper Co. Ltd. 107,382 21,370 19.9 9,098 2.02 Crown Zellerbach Corp. (1/31/53) 248,962 46,351 18.6 22,078 7.11 Eastern Corp. 21,980 1,234 5.6 1,008 2.68 Kalamazoo Vegetable Parchment Co. 43,014 3,533 8.2 1,609 2.14 Kimberly-Clark Co. (1/31/1953) 158,304 19,024 12.0 8,720 4.06 Marathon Corp. (10/31) 86,445 13,694 15.8 7,074 2.28 Great Northern Paper Co. 42,734 10,663 24.9 4,637 4,64 Diamond Match Co. 96,130 5,717 5.9 4,217 3.20 Consolidated Water Power & Paper 54,465 11,891 21.8 4,424 3.48 International Paper Co. 100,305 12,954 12.9 5,954* 4.97* St. Regis Paper Co. 182,712 24,240 13.3 12,702 2.32 Scott Paper Co. 182,712 24,240 13.3 12,702 2.32 Scott Paper Co. 186,903 25,782 17.6 10,707 3.44 Hudson Pulp & Paper Co. (8/31) 35,643 4,716 13.2 2,265 2.01 Champion Paper & Fibre Co. 118,280 22,835 19.3 9,171 3.95 West Va. Pulp & Paper Co. (10/31) 108,933 16,871 15.5 9,471 9.89 Southland Paper Mills, Inc. 19,629 7,449 37.9 2,999 6.46 Camp Mfg. Co., Inc. 20,192 6,380 21.1 3,046 3.20 Southern Advance Bag & Paper 18,990 5,553 29.2 2,482 2.80 Union Bag & Paper Corp. 95,908 24,216 25.2 11,060 6.24 Container Corp. 6 America 178,408 30,383 17.0 10,283 5.01 Gair (Robert) Co., Inc. 107,571 18,150 16.9 6,069 2.66 Gaylord Container Corp. 85,798 15,718 18.3 8,117 3.01 Sutherland Paper Co. (9/30) 18,795 3,183 16.9 1,444 2.67 Hammermill Paper Co. 49,859 6,614 13.3 2,504 2.74 Rhinelander Paper Co. (9/30) 18,795 3,183 16.9 1,444 2.67 Hammermill Paper Co. 49,859 6,614 13.3 2,504 2.74 Rhinelander Paper Co. (9/30) 18,795 3,183 16.9 1,444 2.67 Hammermill Paper Co. 36,501 4,172 11.4 16,694 1.95 Allied Paper Mills Corp. 20,559 1,736 8.4 861 4,56 International Cellucotton Prod. 126,837 12,913 10.2 5,367 2.26 Dennison Mfg. Co. 35,604 4,700 13.2 1,778 3.09	Rayonier Inc.	78,263	23,926	30.6	10,986	4.90
Crown Zellerbach Corp. (1/31/53) 248,962 46,351 18.6 22,078 7.11 Eastern Corp. 21,980 1,234 5.6 1,008 2.68 Kalamazov Vegetable Parchment Co. 43,014 3,533 8.2 1,609 2.14 Kimberly-Clark Co. (1/31/1953) 158,304 19,024 12.0 8,720 4.06 Marathon Corp. (10/31) 86,445 13,694 15.8 7,074 2.28 Great Northern Paper Co. 42,734 10,663 24.9 4,217 3.20 Diamond Match Co. 96,130 5,717 5.9 4,217 3.20 Consolidated Water Power & Paper 54,465 11,891 21.8 4,424 3.48 International Paper Co. 631,421 143,689 22.8 52,126 5.75 Mead Co. 100,305 12,954 12.9 5,954* 4.97* St. Regis Paper Co. 182,712 24,240 13.3 12,702 2.32 Scott Paper Co. 184,903 25,782	MacMillan & Bloedel Co., Ltd. (9/30)	150,875	30,043	19.9	13,818	2.68
Eastern Corp. Kalamazoo Vegetable Parchment Co. 43,014 3,533 8.2 1,609 2.14 Kimberly-Clark Co. (1/31/1953) 158,304 19,024 12.0 8,720 4.06 Marathon Corp. (10/31) 86,445 13,694 15.8 7,074 2.28 Great Northern Paper Co. 42,734 10,663 24.9 4,637 4.64 Diamond Match Co. 96,130 5,717 5.9 4,217 3.20 Consolidated Water Power & Paper 54,465 11,891 21.8 4,424 3.48 International Paper Co. 631,421 143,689 22.8 52,126 5.75 Mead Co. 100,305 12,954 12.9 5,954* 4.97* St. Regis Paper Co. 182,712 24,240 13.3 12,702 2.32 Scott Paper Co. 146,903 25,782 17.6 10,707 3.44 Hudson Pulp & Paper Co. (10/31) 35,643 4,716 13.2 2,265 2.01 Champion Paper & Fibre Co. 118,280 22,835 19.3 9,171 3.95 West Va. Pulp & Paper Co. (10/31) 108,933 16,871 15.5 9,471 9.89 Southland Paper Mills, Inc. 19,629 7,449 37.9 2,999 6.46 Camp Mfg. Co., Inc. 20,192 6,380 21.1 3,046 3.20 Southern Advance Bag & Paper 18,990 5,553 29.2 2,482 2.80 Union Bag & Paper Corp. 95,908 24,216 25.2 11,060 6.24 Container Corp. of America 178,408 30,383 17.0 10,283 5.01 Gair (Robert) Co., Inc. 107,571 18,150 16.9 6,069 2.66 Gaylord Container Corp. 85,798 15,718 18.3 8,117 3.01 Sutherland Paper Co. (9/30) 18,795 3,183 16.9 1,444 2.67 Hammermill Paper Co. (9/30) 18,795 3,183 16.9 1,444 2.67 Hammermill Paper Co. 28,321 1,648 5.8 1,208 1.38 Glatfelter (P.H.) Co. 14,629 2,633 18.0 735 3.14 Warren (S.D.) Co. 36,501 4,172 11.4 1,694 1.95 Allied Paper Mills Corp. 20,559 1,736 8.4 861 4.56 International Cellucotton Prod. 126,837 12,913 10.2 5,367 2.26 Dennison Mfg. Co. 35,604 4,700 13.2 1,778 3.09	Abitibi Power & Paper Co. Ltd.	107,382	21,370	19.9	9,098	2.02
Kalamazoo Vegetable Parchment Co. 43,014 3,533 8.2 1,609 2.14 Kimberly-Clark Co. (1/31/1953) 158,304 19,024 12.0 8,720 4.06 Marathon Corp. (10/31) 86,445 13,694 15.8 7,074 2.28 Great Northern Paper Co. 42,734 10,663 24,9 4,637 4,64 Diamond Match Co. 96,130 5,717 5.9 4,217 3.20 Consolidated Water Power & Paper 54,465 11,891 21.8 4,424 3.48 International Paper Co. 631,421 143,689 22.8 52,126 5.75 Mead Co. 100,305 12,954 12.9 5,954* 4.97* St. Regis Paper Co. 182,712 24,240 13.3 12,702 2.32 Scott Paper Co. (8/31) 35,643 4,716 13.2 2,265 2.01 Champion Paper & Fibre Co. 118,280 22,835 19.3 9,171 3.95 West Va. Pulp & Paper Co. (10/31)	Crown Zellerbach Corp. (1/31/53)	248,962	46,351	18.6	22,078	7.11
Kimberly-Clark Co. (1/31/1953) 158,304 19,024 12.0 8,720 4.06 Marathon Corp. (10/31) 86,445 13,694 15.8 7,074 2.28 Great Northern Paper Co. 42,734 10,663 24.9 4,637 4,64 Diamond Match Co. 96,130 5,717 5.9 4,217 3.20 Consolidated Water Power & Paper 54,465 11,891 21.8 4,424 3.48 International Paper Co. 631,421 143,689 22.8 52,126 5.75 Mead Co. 100,305 12,954 12.9 5,954* 4.97* St. Regis Paper Co. 182,712 24,240 13.3 12,702 2.32 Scott Paper Co. 182,712 24,240 13.3 12,702		21,980	1,234	5.6	1,008	2.68
Marathon Corp. (10/31) 86,445 13,694 15.8 7,074 2.28 Great Northern Paper Co. 42,734 10,663 24.9 4,637 4.64 Diamond Match Co. 96,130 5,717 5.9 4,217 3.20 Consolidated Water Power & Paper 54,465 11,891 21.8 4,424 3.48 International Paper Co. 631,421 143,689 22.8 52,126 5.75 Mead Co. 100,305 12,954 12.9 5,954* 4.97* St. Regis Paper Co. 182,712 24,240 13.3 12,702 2.32 Scott Paper Co. 146,903 25,782 17.6 10,707 3.44 Hudson Pulp & Paper Co. (8/31) 35,643 4,716 13.2 2,265 2.01 Champion Paper & Fibre Co. 118,280 22,835 19.3 9,171 3.95 West Va. Pulp & Paper Co. (10/31) 108,933 16,871 15.5 9,471 9.89 Southland Paper Mills, Inc. 19,629 7,449 3		43,014	3,533	8.2	1,609	2.14
Great Northern Paper Co. 42,734 10,663 24.9 4,637 4.64 Diamond Match Co. 96,130 5,717 5.9 4,217 3.20 Consolidated Water Power & Paper 54,465 11,891 21.8 4,424 3.48 International Paper Co. 631,421 143,689 22.8 52,126 5.75 Mead Co. 100,305 12,954 12.9 5,954* 4.97* St. Regis Paper Co. 182,712 24,240 13.3 12,702 2.32 Scott Paper Co. 146,903 25,782 17.6 10,707 3.44 Hudson Pulp & Paper Co. (8/31) 35,643 4,716 13.2 2,265 2.01 Champion Paper & Fibre Co. 118,280 22,835 19.3 9,171 3.95 West Va. Pulp & Paper Co. (10/31) 108,933 16,871 15.5 9,471 9.89 Southland Paper Mills, Inc. 19,629 7,449 37.9 2,999 6.46 Camp Mfg. Co., Inc. 20,192 6,380 21.1<		158,304	19,024	12.0	8,720	4.06
Diamond Match Co. 96,130 5,717 5.9 4,217 3.20 Consolidated Water Power & Paper 54,465 11,891 21.8 4,424 3.48 International Paper Co. 631,421 143,689 22.8 52,126 5.75 Mead Co. 100,305 12,954 12.9 5,954* 4.97* St. Regis Paper Co. 182,712 24,240 13.3 12,702 2.32 Scott Paper Co. 146,903 25,782 17.6 10,707 3.44 Hudson Pulp & Paper Co. (8/31) 35,643 4,716 13.2 2,265 2.01 Champion Paper & Fibre Co. 118,280 22,835 19.3 9,171 3.95 West Va. Pulp & Paper Co. (10/31) 108,933 16,871 15.5 9,471 9.89 Southland Paper Mills, Inc. 19,629 7,449 37.9 2,999 6.46 Camp Mfg. Co., Inc. 20,192 6,380 21.1 3,046 3.20 Southern Advance Bag & Paper 18,990 5,553 <td></td> <td>86,445</td> <td>13,694</td> <td>15.8</td> <td>7,074</td> <td>2.28</td>		86,445	13,694	15.8	7,074	2.28
Consolidated Water Power & Paper 54,465 11,891 21.8 4,424 3.48 International Paper Co. 631,421 143,689 22.8 52,126 5.75 Mead Co. 100,305 12,954 12.9 5,954* 4.97* St. Regis Paper Co. 182,712 24,240 13.3 12,702 2.32 Scott Paper Co. 146,903 25,782 17.6 10,707 3.44 Hudson Pulp & Paper Co. (8/31) 35,643 4,716 13.2 2,265 2.01 Champion Paper & Fibre Co. 118,280 22,835 19.3 9,171 3.95 West Va. Pulp & Paper Co. (10/31) 108,933 16,871 15.5 9,471 9.89 Southland Paper Mills, Inc. 19,629 7,449 37.9 2,999 6.46 Camp Mfg. Co., Inc. 20,192 6,380 21.1 3,046 3.20 Southern Advance Bag & Paper 18,990 5,553 29.2 2,482 2.80 Union Bag & Paper Corp. 95,908 </td <td>Great Northern Paper Co.</td> <td>42,734</td> <td>10,663</td> <td>24.9</td> <td>4,637</td> <td>4.64</td>	Great Northern Paper Co.	42,734	10,663	24.9	4,637	4.64
International Paper Co. 631,421 143,689 22.8 52,126 5.75	Diamond Match Co.	96,130	5,717	5.9	4,217	3.20
Mead Co. 100,305 12,954 12.9 5,954* 4.97* St. Regis Paper Co. 182,712 24,240 13.3 12,702 2.32 Scott Paper Co. 146,903 25,782 17.6 10,707 3.44 Hudson Pulp & Paper Co. (8/31) 35,643 4,716 13.2 2,265 2.01 Champion Paper & Fibre Co. 118,280 22,835 19.3 9,171 3.95 West Va. Pulp & Paper Co. (10/31) 108,933 16,871 15.5 9,471 9.89 Southland Paper Mills, Inc. 19,629 7,449 37.9 2,999 6.46 Camp Mfg. Co., Inc. 20,192 6,380 21.1 3,046 3.20 Southern Advance Bag & Paper 18,990 5,553 29.2 2,482 2.80 Union Bag & Paper Corp. 95,908 24,216 25.2 11,060 6.24 Container Corp. of America 178,408 30,383 17.0 10,283 5.01 Gair (Robert) Co., Inc. 107,571	Consolidated Water Power & Paper	54,465	11,891	21.8	4,424	3.48
St. Regis Paper Co. 182,712 24,240 13.3 12,702 2.32 Scott Paper Co. 146,903 25,782 17.6 10,707 3.44 Hudson Pulp & Paper Co. 182,80 22,835 19.3 9,171 3.95 West Va. Pulp & Paper Co. 10/31) 108,933 16,871 15.5 9,471 9.89 Southland Paper Mills, Inc. 19,629 7,449 37.9 2,999 6.46 Camp Mfg. Co., Inc. 20,192 6,380 21.1 3,046 3.20 Southern Advance Bag & Paper 18,990 5,553 29.2 2,482 2.80 Union Bag & Paper Corp. 95,908 24,216 25.2 11,060 6.24 Container Corp. of America 178,408 30,383 17.0 10,283 5.01 Gair (Robert) Co., Inc. 107,571 18,150 16.9 6,069 2.66 Gaylord Container Corp. 85,798 15,718 18.3 8,117 3.01 Sutherland Paper Co. 49,859 6,614 13.3 2,504 2.74 Rhinelander Paper Co.	International Paper Co.		143,689	22.8	52,126	5.75
Scott Paper Co. 146,903 25,782 17.6 10,707 3.44 Hudson Pulp & Paper Co. (8/31) 35,643 4,716 13.2 2,265 2.01 Champion Paper & Fibre Co. 118,280 22,835 19.3 9,171 3.95 West Va. Pulp & Paper Co. (10/31) 108,933 16,871 15.5 9,471 9.89 Southland Paper Mills, Inc. 19,629 7,449 37.9 2,999 6.46 Camp Mfg. Co., Inc. 20,192 6,380 21.1 3,046 3.20 Southern Advance Bag & Paper 18,990 5,553 29.2 2,482 2.80 Union Bag & Paper Corp. 95,908 24,216 25.2 11,060 6.24 Container Corp. of America 178,408 30,383 17.0 10,283 5.01 Gair (Robert) Co., Inc. 107,571 18,150 16.9 6,069 2.66 Gaylord Container Corp. 85,798 15,718 18.3 8,117 3.01 Sutherland Paper Co. (9			12,954		5,954*	4.97*
Hudson Pulp & Paper Co. (8/31) 35,643 4,716 13.2 2,265 2.01 Champion Paper & Fibre Co. 118,280 22,835 19.3 9,171 3.95 West Va. Pulp & Paper Co. (10/31) 108,933 16,871 15.5 9,471 9.89 Southland Paper Mills, Inc. 19,629 7,449 37.9 2,999 6.46 Camp Mfg. Co., Inc. 20,192 6,380 21.1 3,046 3.20 Southern Advance Bag & Paper 18,990 5,553 29.2 2,482 2.80 Union Bag & Paper Corp. 95,908 24,216 25.2 11,060 6.24 Container Corp. of America 178,408 30,383 17.0 10,283 5.01 Gair (Robert) Co., Inc. 107,571 18,150 16.9 6,069 2.66 Gaylord Container Corp. 85,798 15,718 18.3 8,117 3.01 Sutherland Paper Co. 49,859 6,614 13.3 2,504 2.74 Rhinelander Paper Co. 28,321 1,648 5.8 1,208 1.38 Glatfelter (P.H.) Co.	St. Regis Paper Co.	182,712	24,240	13.3	12,702	2.32
Champion Paper & Fibre Co. 118,280 22,835 19.3 9,171 3.95 West Va. Pulp & Paper Co. (10/31) 108,933 16,871 15.5 9,471 9.89 Southland Paper Mills, Inc. 19,629 7,449 37.9 2,999 6.46 Camp Mfg. Co., Inc. 20,192 6,380 21.1 3,046 3.20 Southern Advance Bag & Paper 18,990 5,553 29.2 2,482 2.80 Union Bag & Paper Corp. 95,908 24,216 25.2 11,060 6.24 Container Corp. of America 178,408 30,383 17.0 10,283 5.01 Gair (Robert) Co., Inc. 107,571 18,150 16.9 6,069 2.66 Gaylord Container Corp. 85,798 15,718 18.3 8,117 3.01 Sutherland Paper Co. 49,859 6,614 13.3 2,504 2.74 Rhinelander Paper Co. 28,321 1,648 5.8 1,208 1.38 Glatfelter (P.H.) Co. 14,629 2,633 18.0 735 3.14 Warren (S.D.) Co. 36,501					10,707	
West Va. Pulp & Paper Co. (10/31) 108,933 16,871 15.5 9,471 9.89 Southland Paper Mills, Inc. 19,629 7,449 37.9 2,999 6.46 Camp Mfg. Co., Inc. 20,192 6,380 21.1 3,046 3.20 Southern Advance Bag & Paper 18,990 5,553 29.2 2,482 2.80 Union Bag & Paper Corp. 95,908 24,216 25.2 11,060 6.24 Container Corp. of America 178,408 30,383 17.0 10,283 5.01 Gair (Robert) Co., Inc. 107,571 18,150 16.9 6,069 2.66 Gaylord Container Corp. 85,798 15,718 18.3 8,117 3.01 Sutherland Paper Co. 49,859 6,614 13.3 2,504 2.74 Rhinelander Paper Co. 28,321 1,648 5.8 1,208 1.38 Glatfelter (P.H.) Co. 14,629 2,633 18.0 735 3.14 Warren (S.D.) Co. 36,501 4,172 11.4	Hudson Pulp & Paper Co. (8/31)		4,716		2,265	2.01
Southland Paper Mills, Inc. 19,629 7,449 37.9 2,999 6.46 Camp Mfg. Co., Inc. 20,192 6,380 21.1 3,046 3.20 Southern Advance Bag & Paper 18,990 5,553 29.2 2,482 2.80 Union Bag & Paper Corp. 95,908 24,216 25.2 11,060 6.24 Container Corp. of America 178,408 30,383 17.0 10,283 5.01 Gair (Robert) Co., Inc. 107,571 18,150 16.9 6,069 2.66 Gaylord Container Corp. 85,798 15,718 18.3 8,117 3.01 Sutherland Paper Co. 49,859 6,614 13.3 2,504 2.74 Rhinelander Paper Co. 28,321 1,648 5.8 1,208 1,38 Glatfelter (P.H.) Co. 14,629 2,633 18.0 735 3.14 Warren (S.D.) Co. 36,501 4,172 11.4 1,694 1.95 Allied Paper Mills Corp. 20,559 1,736 8.4 <td< td=""><td>Champion Paper & Fibre Co.</td><td>118,280</td><td>22,835</td><td>19.3</td><td>9,171</td><td>3.95</td></td<>	Champion Paper & Fibre Co.	118,280	22,835	19.3	9,171	3.95
Camp Mfg. Co., Inc. 20,192 6,380 21.1 3,046 3.20 Southern Advance Bag & Paper 18,990 5,553 29.2 2,482 2.80 Union Bag & Paper Corp. 95,908 24,216 25.2 11,060 6.24 Container Corp. of America 178,408 30,383 17.0 10,283 5.01 Gair (Robert) Co., Inc. 107,571 18,150 16.9 6,069 2.66 Gaylord Container Corp. 85,798 15,718 18.3 8,117 3.01 Sutherland Paper Co. 49,859 6,614 13.3 2,504 2.74 Rhinelander Paper Co. 28,321 1,648 5.8 1,208 1.38 Glatfelter (P.H.) Co. 14,629 2,633 18.0 735 3.14 Warren (S.D.) Co. 36,501 4,172 11.4 1,694 1.95 Allied Paper Mills Corp. 20,559 1,736 8.4 861 4.56 International Cellucotton Prod. 126,837 12,913 10.2	West Va. Pulp & Paper Co. (10/31)	108,933	16,871	15.5	9,471	9.89
Southern Advance Bag & Paper 18,990 5,553 29.2 2,482 2.80 Union Bag & Paper Corp. 95,908 24,216 25.2 11,060 6.24 Container Corp. of America 178,408 30,383 17.0 10,283 5.01 Gair (Robert) Co., Inc. 107,571 18,150 16.9 6,069 2.66 Gaylord Container Corp. 85,798 15,718 18.3 8,117 3.01 Sutherland Paper Co. 49,859 6,614 13.3 2,504 2.74 Rhinelander Paper Co. 28,321 1,648 5.8 1,208 1.38 Glatfelter (P.H.) Co. 14,629 2,633 18.0 735 3.14 Warren (S.D.) Co. 36,501 4,172 11.4 1,694 1.95 Allied Paper Mills Corp. 20,559 1,736 8.4 861 4.56 International Cellucotton Prod. 126,837 12,913 10.2 5,367 2.26 Dennison Mfg. Co. 35,604 4,700 13.2 1,778 3.09						
Union Bag & Paper Corp. 95,908 24,216 25.2 11,060 6.24 Container Corp. of America 178,408 30,383 17.0 10,283 5.01 Gair (Robert) Co., Inc. 107,571 18,150 16.9 6,069 2.66 Gaylord Container Corp. 85,798 15,718 18.3 8,117 3.01 Sutherland Paper Co. 49,859 6,614 13.3 2,504 2.74 Rhinelander Paper Co. (9/30) 18,795 3,183 16.9 1,444 2.67 Hammermill Paper Co. 28,321 1,648 5.8 1,208 1.38 Glatfelter (P.H.) Co. 14,629 2,633 18.0 735 3.14 Warren (S.D.) Co. 36,501 4,172 11.4 1,694 1.95 Allied Paper Mills Corp. 20,559 1,736 8.4 861 4.56 International Cellucotton Prod. 126,837 12,913 10.2 5,367 2.26 Dennison Mfg. Co. 35,604 4,700 13.2 1,778 3.09						3.20
Container Corp. of America 178,408 30,383 17.0 10,283 5.01 Gair (Robert) Co., Inc. 107,571 18,150 16.9 6,069 2.66 Gaylord Container Corp. 85,798 15,718 18.3 8,117 3.01 Sutherland Paper Co. 49,859 6,614 13.3 2,504 2.74 Rhinelander Paper Co. (9/30) 18,795 3,183 16.9 1,444 2.67 Hammermill Paper Co. 28,321 1,648 5.8 1,208 1.38 Glatfelter (P.H.) Co. 14,629 2,633 18.0 735 3.14 Warren (S.D.) Co. 36,501 4,172 11.4 1,694 1.95 Allied Paper Mills Corp. 20,559 1,736 8.4 861 4.56 International Cellucotton Prod. 126,837 12,913 10.2 5,367 2.26 Dennison Mfg. Co. 35,604 4,700 13.2 1,778 3.09			5,553		2,482	2.80
Gair (Robert) Co., Inc. 107,571 18,150 16.9 6,069 2.66 Gaylord Container Corp. 85,798 15,718 18.3 8,117 3.01 Sutherland Paper Co. 49,859 6,614 13.3 2,504 2.74 Rhinelander Paper Co. (9/30) 18,795 3,183 16.9 1,444 2.67 Hammermill Paper Co. 28,321 1,648 5.8 1,208 1.38 Glatfelter (P.H.) Co. 14,629 2,633 18.0 735 3.14 Warren (S.D.) Co. 36,501 4,172 11.4 1,694 1.95 Allied Paper Mills Corp. 20,559 1,736 8.4 861 4.56 International Cellucotton Prod. 126,837 12,913 10.2 5,367 2.26 Dennison Mfg. Co. 35,604 4,700 13.2 1,778 3.09	Union Bag & Paper Corp.	95,908	24,216	25.2	11,060	6.24
Gaylord Container Corp. 85,798 15,718 18.3 8,117 3.01 Sutherland Paper Co. 49,859 6,614 13.3 2,504 2.74 Rhinelander Paper Co. (9/30) 18,795 3,183 16.9 1,444 2.67 Hammermill Paper Co. 28,321 1,648 5.8 1,208 1.38 Glatfelter (P.H.) Co. 14,629 2,633 18.0 735 3.14 Warren (S.D.) Co. 36,501 4,172 11.4 1,694 1.95 Allied Paper Mills Corp. 20,559 1,736 8.4 861 4.56 International Cellucotton Prod. 126,837 12,913 10.2 5,367 2.26 Dennison Mfg. Co. 35,604 4,700 13.2 1,778 3.09						
Sutherland Paper Co. 49,859 6,614 13.3 2,504 2.74 Rhinelander Paper Co. (9/30) 18,795 3,183 16.9 1,444 2.67 Hammermill Paper Co. 28,321 1,648 5.8 1,208 1.38 Glatfelter (P.H.) Co. 14,629 2,633 18.0 735 3.14 Warren (S.D.) Co. 36,501 4,172 11.4 1,694 1.95 Allied Paper Mills Corp. 20,559 1,736 8.4 861 4.56 International Cellucotton Prod. 126,837 12,913 10.2 5,367 2.26 Dennison Mfg. Co. 35,604 4,700 13.2 1,778 3.09						
Rhinelander Paper Co. (9/30) 18,795 3,183 16.9 1,444 2.67 Hammermill Paper Co. 28,321 1,648 5.8 1,208 1.38 Glatfelter (P.H.) Co. 14,629 2,633 18.0 735 3.14 Warren (S.D.) Co. 36,501 4,172 11.4 1,694 1.95 Allied Paper Mills Corp. 20,559 1,736 8.4 861 4.56 International Cellucotton Prod. 126,837 12,913 10.2 5,367 2.26 Dennison Mfg. Co. 35,604 4,700 13.2 1,778 3.09						
Hammermill Paper Co. 28,321 1,648 5.8 1,208 1.38 Glatfelter (P.H.) Co. 14,629 2,633 18.0 735 3.14 Warren (S.D.) Co. 36,501 4,172 11.4 1,694 1.95 Allied Paper Mills Corp. 20,559 1,736 8.4 861 4.56 International Cellucotton Prod. 126,837 12,913 10.2 5,367 2.26 Dennison Mfg. Co. 35,604 4,700 13.2 1,778 3.09	Sutherland Paper Co.	49,859	6,614	13.3	2,504	2.74
Glatfelter (P.H.) Co. 14,629 2,633 18.0 735 3.14 Warren (S.D.) Co. 36,501 4,172 11.4 1,694 1.95 Allied Paper Mills Corp. 20,559 1,736 8.4 861 4.56 International Cellucotton Prod. 126,837 12,913 10.2 5,367 2.26 Dennison Mfg. Co. 35,604 4,700 13.2 1,778 3.09						
Warren (S.D.) Co. 36,501 4,172 11.4 1,694 1.95 Allied Paper Mills Corp. 20,559 1,736 8.4 861 4.56 International Cellucotton Prod. 126,837 12,913 10.2 5,367 2.26 Dennison Mfg. Co. 35,604 4,700 13.2 1,778 3.09						
Allied Paper Mills Corp. 20,559 1,736 8.4 861 4.56 International Cellucotton Prod. 126,837 12,913 10.2 5,367 2.26 Dennison Mfg. Co. 35,604 4,700 13.2 1,778 3.09						
International Cellucotton Prod. 126,837 12,913 10.2 5,367 2.26 Dennison Mfg. Co. 35,604 4,700 13.2 1,778 3.09						
Dennison Mfg. Co. 35,604 4,700 13.2 1,778 3.09	Allied Paper Mills Corp.	20,559	1,736	8.4	861	4.56
						3.09

*Includes profit on sale of Manistique, Michigan mill of \$860,375 or \$0.75 per share.



EXECUTIVES OF SWEDISH MILLS IN WEST

HIGH RANKING OFFICIALS of Mooch Domsjo, A. B., Mills of Sweden were recent visitors at MacMillan & Bloedel's Harmac (B.C.) mill and Weyerhaeuser, Puget Sound Pulp & Timber and Scott Soundview mills in Washington state. This picture by PULP & PAPER shows them in Everett at Weyerhaeuser's mill (1 to r): B. ERIC J. DIETRICHS, Gen. Mgr. of Husum Mill (he designed Harmac's Bleach Plant

where Husum chlorine dioxide process is used;
A. HALVAR LUNDBERG, Swedish-born Seattle consulting engineer; K. SIXTEN O. ULFSPARRE, Tech.
Director of the company, hatrs. a) Husum; N. W.
COSTER, Gen. Supt., Scott-Soundview; RUSSELL J.
LEROUX, Mgr. in Everett for Weyerhaeuser Pulp
Div.; ERNST PLANHAMMER, Gen. Mgr., Hornefors

SUPTS. HEAR ABOUT HOW MANAGEMENT MEN ARE MADE TRAINING EXECUTIVES

LABOR LEADER ALSO LAYS IT ON LINE AT LAKE DELTON

"I've BEEN GOING to paper industry meetings for 25 years and I never heard anything like this before!"

Awe and admiration mingled in this sotto voce exclamation from a veteran Wisconsin superintendent as he nudged a PULP & PAPER editor in the midst of a "management training" session at the Northwestern Superintendents' Spring convention.

He didn't exaggerate. It is doubtful if anyone else heard anything quite like it at any association meeting. Talks on training and qualifications of management men often are given—more frequently these past years. But this was different.

It was a whole session, with three talks on the subject dovetailed together. And the speakers were outsiders—a consulting industrial psychologist, an instructor of college management courses, and a state circuit teacher for supervisors. Probably because they were outsiders, they didn't pull any punches. Here are some conclusions:

1. This industry is doing a good job of developing supervisory talent in the lower echelons, but a poor job of developing executives for higher levels. Just a handful of companies were cited as doing a good job.

2. A company should let a prospective management man make small decisions and small mistakes to prepare for top positions

3. It is surprising how teamwork and management talent can be rapidly developed by committee or consultative management practices.

4. A company which permits its supervisors to learn first about important company news when they read the newspapers, or from outside gossip, is destroying supervisory morale.

NORTHWESTERN SUPTS. and guests cruise through Wisconsin Delts, for 100 years a favorite scenic spot in midwest. Left: An upper deck boat group—the two men standing are J. E. STEPHENS, New York, Babcock & Wilcox Co., and SAMUEL S. CROCKER, Sales Mgr., John W. Bolton & Sons Inc., Emerson Mfg. Div. Right: One of the views they saw—the Delts of Wisconsin.





5. Psycho and aptitude tests can boomerang when the company becomes more preoccupied with methods than objectives.

Two speakers recommended a book—"Development of Executive Talent," an extensive compilation of case studies drawn from Standard Oil, Monsanto. Sears-Roebuck, etc. (Information on this book can be obtained by writing Pulp & Paper, 1791 Howard St., Chicago 26, Ill.).

Only about 70 attended this first session of the convention, May 7 in the main lodge of Dell View hotel, Lake Delton, Wis. Most of the 325 men and women of the industry who finally arrived for the weekend events weren't there yet, and the bright sunshine, golf course and traps may have kept some others from it.

Superintendents Asked For It

The session was the result of a questionnaire which Larry W. Murtfeldt, pulp mill superintendent at Consolidated, Wisconsin Rapids, the chairman, and John A. McPherson, assistant mill manager at Mosinee, the secretary-treasurer, sent members. A big majority asked for talks on management training. Mr. Murtfeldt and Mr. McPherson lined up these speakers:

Dr. William D. Blum, consulting industrial psychologist of Appleton, Wis., who has served Wisconsin paper firms, also steel plants, foundries and other industries

Fred Roberts, of the University of Wisconsin Industrial Management Institute,

LABOR AND MANAGEMENT TOPICS

THE "BIGWIGS" ON LAKE DELTON PROGRAM (I to r): LARRY MURTFELDT, Division Chairman and Consolidated Power & Paper Co. Pulp Supt. at The Rapids, with GEORGE HABERMAN, Pres. of Wis. Federation of Labor; DR. WM. D. BLUM, Industrial Psychologist, Appleton; FRED ROBERTS, U. of Wisconsin Industrial Management Institute; CHARLES W. WINEGARNER, Circuit Teacher, Foremen's Courses by State of Wisconsin.

whose classes have been attended by many paper industry men (and he worked in a mill himself), and

Charles W. Winegarner, Fond du Lac, Wis., circuit teacher of Wisconsin Schools of Vocational and Adult Education.

Gus K. Klaus, converting operations superintendent, Northern Paper Mills, and second vice chairman of the division, chairmanned the session and he and Nate Malcove, technical director at Northern, were Thespians in a short playlet demonstrating the right and wrong ways to hire a new man.

"A serious management problem is executive inventory and development," said Dr. Blum, comparing it to planting the right trees in the right soil and environment.

He observed that in one company a high level management man cannot qualify for a promotion unless he is training a successor behind him. Where this is not being done, a company will hurriedly raid other companies to fill a vacancy and usually "has only the foggiest notions about the qualifications of the man employed."





Dr. Blum said in one mill four men turned down a foremanship because they did not want to cut loose from union security. He commented that an investigation beforehand to find a man desirous of advancing, who may be studying outside, etc., and getting the right men ready for promotion, would have avoided this embarrassment

"The first thing to do with a fourth hand is to find out if he is potentially a good tour boss," he said.

One big Wisconsin paper manufacturing company uses "multiple appraisal" instead of the older type perfunctory merit ratings. The advantage is that three or four persons, with a guiding coach, produces a better inventory of talent. There is another advantage—the participants themselves learn to be "bigger people, not picayunish on small things.

Psychological and aptitude tests, he said, provide a quick way to learn capacities and aspirations, and have value in selecting lower grade workers, but can be overdone. Outside specialists, perhaps from colleges, should be used, he suggested, and the tests should not be too pressing on subjects and they should have "face-saving" devices.

To develop executives, he recommended a company permit "significant decisions to be made within policy limits at the lowest possible levels.

Job rotation is a good way to develop executives, he said. "Some companies think this is too costly, but if the company doesn't do it, the men will do it themselves by jumping around from company to company.

"But while the learning curve in rotation goes up rapidly, it tapers off rapidly, too, and then is the time to place the man in more permanency and in good environment," said Dr. Blum.

"The technical department, in my opinion, is the best job rotation department in the mill," he said.

"Multiple management through staff meetings, while avoiding the danger of pitting one department against the other too sharply or damagingly, is a good means of company communication and for development of genuine management men," he added.

He warned that a man's uncertainty of his authority and of his relationship to others, can "take years off his life." Foremen who have been sent by their Wisconsin paper companies to the Management Institute at Madison "come back to their jobs with their heads higher, and their enthusiasm and initiative both sharpened."

Building a Management Team

Mr. Roberts, from the aforementioned institute, was assigned the topic: "Building a Management Team."

He cautioned that a mill department might have a wonderful "team" but it might be bad for the company as a whole. For instance, when the pulp mill fails to warn the paper mill that a bad batch of pulp is coming. Or if one department can't take suggestions from another.' The whole company should be integrated into a "team," he said.



To build executives, he warned against "mollycoddling a man for 15 years, then suddenly giving him responsibility," making minor executives "go to the front office every time they have to make a decision."

To build teamwork, he stressed sharing information about the company business and spreading the gospel of "com-mon goals." On the other hand, permitting individuals to "grasp all the glory," "work only to personal advantage" or "to permit a situation where one foreman can sweep dirt under another's carpet," will wreck teamwork.

The man who finds his boss is going to New York to a big meeting from reading it in the local newspaper, or who hears his company is going to build a mill in Canada in cloakroom gossip, is not being properly developed for company responsibility," he said. "Nor is the type who refuses a promotion, which takes him out from under the umbrella of union security, by saying 'why should I take all that guff and give up what I have for 10 cents an hour?

He suggested a good practice is to have two foremen swap jobs on a visiting basis -one sees things the other doesn't for improvement.

Committee management methods, permitting more participation in decisions, was urged for building a "team."

Gen. Patton Type Leadership

He concluded that the "General Paton type of leadership"-getting in front and leading, not behind and pushing, is the kind that industry needs. He interpreted this as a leader who is big enough to look for faults in himself first. Also one who is not petty, nor dominating, and when foremen speak up in a committee management meeting, they do not need to fear reprisals for criticisms they may voice.

A pulp and paper company had a team,

SNAPPED AT LAKE DELTON:

Upper Left (I to r): DAVID DEZURIK, Pres. Zurik Shower Co.; LEO FITZGERALD, Mgr. of Hercules Powder, Milwaukee plant; HELEN SCHEIDERER, Secretary to EARL OTTO at Wisconsin Rapids Mill, Secretary to EARL OTTO at Wisconsin Rapids Mill, and Mr. OTTO, Convention Chairmen and Supt. of Maintenance, Consolidated, The Rapids.

Upper Right: JOE JENKINS, The Northwest Paper Co., and his wife, Virginia, of Cloquet, Minn.

Below II to rl: ROBT. MADER, Coordinator of Book Paper Production and Sales, Consolidated Water

Power & Paper Co.; JOHN McPHERSON, Asst. Mill Manager, Mosinee Paper Mills, Secretary-Treasurer of the Division; ROBERT F. McCLELLAN, Middle West Nopco Chemical Co., Chicago, and RUDOLPH MEYER, retired former Paper Supt., Badger Mills, Peshtigo, Wis.

he said, when they speak of their company as "we"-not "they"-"our company" not "their's."

Mr. Winegarner, the circuit teacher, stressed human relations in his talk. The factors that make a man happy, he said, include besides health, faith and money, a well-learned job and a desire to make himself happy, too. The economic changes, upheavals of war, he said, have made a supervisor's job more difficult. He explained the Wisconsin short courses program of foremen training offers a course in job instructor training, another in personnel relations training, and in industrial safety training.

A good supervisor will always permit workers under him to retain their dignity as human beings, he said. "Directed discussion" is much better than one speaker doing all the talking at meetings,

he added.

"A paper company will have to pay for the cost of supervisor training or else pay for the lack of it later," said Mr Wine-

Labor Leader Speaker

George Haberman, president of the Wisconsin State Federation of Labor, was luncheon speaker, and he didn't pull any punches, either

He declared that elementary schools do



SNAPPED AT LAKE DELTON

GOLFERS LEFT (I to r): CLARK WAKEFIELD, Titanium Pigment; JOHN NYLUND, Paper Industry rep, in Wis., Minn. and III. for General Dyestuff Corp.; MYLES REIF, Vice Pres. and Gen. Mgr., Blandin Paper Ce., and First Vice Chairman of the Division, and JOHN L. EICH, newly appointed Middle West Mgr. for General Dyestuff Corp., headquarters in Chicago.

GOLFERS RIGHT (I to r): LARRY SABATKE, Marathon Paper Supt. at Rothschild; FRANK CHADWICK, Nopco Chemicals, Milwaukee; ROBERT RUSCH, Paper Supt., Mosinee Mills; LEO WILLOUGHBY, Staley & Co., Appleton.

Lower left—a group on Dells cruise with JESSE TRASK, Mgr., Shawano Mills, and MURRAY BENNETT, Pres. of Chemical Linings Inc., in front, Lower right (I to 1): MARTIN J. AUCHTER, Vice Pres. of Mfg., Hoberg Paper Mills; JACK HAYES, Pres. of Appleton Mfg. Co., Appleton, Wis., and ROBERT E. KISSELL, Gen. Supt., Hoberg, watching golfers check in

not have a "fair" history of the labor movement, and that graduates are not prepared properly to enter industry. "We find these men in personnel departments at the mills and they do not have the right psychological background to interview job applicants properly," Mr. Haberman

PAST CHAIRMEN AT DELTON

Several past chairmen of the Northwestern Superintendents division showed up for the meeting this year at Lake Delton, the Wisconsin Dells. They were Paul West of Thilmany, Mace Harris of Northwest, Larry Sabatke of Marathon, Sigge Ekman of Rhinelander (all chairmen since 1947), Henry Baldwin of Consolidated (1943) Rudolf Meyer, retired, former of Badger (1936) and Roy Kelly, Marathon (1926).

Charley Ludwig Dies

Charles J. Ludwig, for 28 years general superintendent of the Chillicothe, O., division of The Mead Corp., died in hospital May 5 from a broken abdominal artery. His widow, Maude, is his only immediate family survivor. He was 64 years old, was with Mead 48 years.

His father, Michael, also was a longtime Mead superintendent. added.

He deplored "wasting" \$1,000 to \$2,000 in the 4 or 5 year apprentice programs on young men whose aptitudes should have been discovered before they left high school, but who turned out to be unsuited for apprenticeships.

He said "I do not find too much fault with the Taft-Hartley Act, except that no law should make second class citizens out of one large group"—referring to the Communist pledge clause required of labor leaders.

The rest of the convention was the usual. The "bull sessions" where paper and pulp makers had "free-for-all" discussions of their problems. The dances, the golf, the trapshooting. Many said it was one of the best meetings the division has had

Earl Otto, superintendent of maintenance at Consolidated's Rapids mill, was convention chairman. Mr. Murtfeldt, Mr. Klaus, Mr. McPherson, Larry Sabatke, Jack Lauterback, Lloyd Greiner and Mrs. Pearl Klaus were on his committee.

Jim Rushes' Daughter Wed

James A. Rush, manager of the Stevens Point, Wis., operations of Consolidated Water Power & Paper Co., and his wife, Helen, gave their daughter, Janice, in marriage at Stevens Point May 20 to Edwin Welch, young Minneapolis man who is a Navy disbursing officer at Newport, R.I., where the couple will live while he is in service.

One Mill—But Many Cheesemakers Tapped by Pollution Commission

Wisconsin's water pollution committee has ordered 41 towns and companies on the Chippewa River basin to install waste treatment plants. One is Peavey Paper Mills, which makes 20 tons daily groundwood and newsprint and tissue, but there were numerous cheese and dairy products plants.

Mead Laboratories Open

The new Mead Research Laboratories, costing nearly \$1,000,000, housed in two buildings at Chillicothe, O. (picture page 38, May issue) was dedicated Apr. 29 when Marianna Mead, youngest daughter of George H. Mead, honorary chairman, "blew" an experimental digester. Charles F. Kettering, veteran Mead director and General Motors ex-v.p., made the principal address.

Russell H. Savage, vice president for research, said the first experimental cook was one of a series on high yield pulping which may be very important to the company. The new additions are a 2 story, 166 by 54 ft. brick laboratory and office building and an adjoining pilot plant with 15,630 sq. ft.

Gilbert Paper Honored

Gilbert Paper Co., Neenah, Wis., received a Wisconsin state safety council award in a ceremony at the mill recently for outstanding safety improvement in 1952

A. C. Haselow, secretary-treasurer, received the award. T. C. Catlin, superintendent, E. R. Hela, representing company foremen, William Robinson, for the union, and C. F. Elmgren, personnel manager, were among participants.

John L. Eich Midwest Mgr. For General Dyestuff Corp.

John L. Eich has been promoted to Midwest manager in all fields, textile, paper, etc., for General Dyestuff Corp., with headquarters at 310 West Polk St., Chicago. He was formerly assistant manager of New York sales.

John Nylund, General Dyestuff's veteran representative in the paper mill fields of Wisconsin, Minnesota and Illinois, and his wife, Marge, accompanied Mr. Eich to the Northwestern Superintendents' meeting at Lake Delton, Wis., where he met many operations and technical executives of the industry.

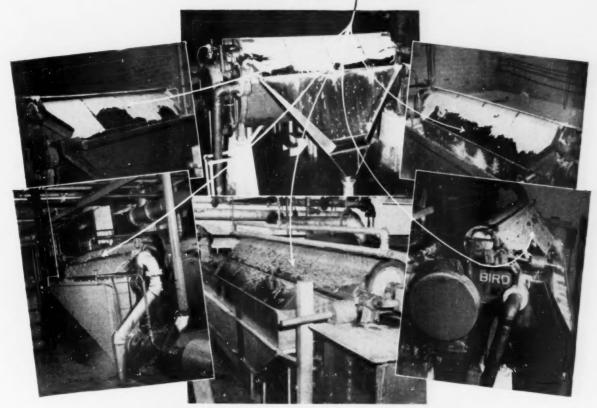
BLANDIN CO. EXECUTIVES

C. KIRK ANDREWS (left), has been appointed Executive Vice President of Blandin Paper Co., Grand Rapids, Minn., according to C. K. Blandin, President. MYLES REIF (middle) has been promoted from Gen. Supt. to Vice President and General Manager. GEORGE W. GOELZ (right), has been promoted from Chief Engineer to Vice President and Assistant General Manager.



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PROBLEM OF DE-INK WASTE

KALAMAZOO RESEARCH SHOWS PROMISE FOR ITS RE-USE

RIDE DOWN IMPROVED and widened Cork Street in Kalamazoo, Mich., now and you will see something strange and rather startling.

Of course, you will see the Dutch gardens in rich black soil, mostly celery beds, for which Kalamazoo is famous. But when you come to Monarch Division of Allied Paper Mills there are some new kinds of beds—large lagooning beds dredged out of the earth and a settling tank, a Dorr Clarifier of impressive size. They occupy a considerable area across the road from the mill and will represent a substantial investment.

Under state orders, all eight of the socalled "book" mills in the Kalamazoo Valley area are going to have to install similar huge layouts for the sedimentation and removal of turbidity of their de-ink plant wastes.

A "demonstration plant" at Michigan Paper Co. of Plainwell, shown in pictures on this page, set a general pattern. The Allied Monarch Division is the second mill to put in its plant. The two Allied mills, two Kalamazoo Paper Co. mills, Rex Paper, St. Regis Paper, Watervliet Paper and, of course, the Plainwell mill, are the group that must obey.

The hopes of these six companies that they will eventually be able to justify this required expenditure are centered in work being done in the new pulp and paper research laboratories out at Western Michigan College, in the western outskirts of Kalamazoo.

Meanwhile, just a few weeks ago, the city of Kalamazoo, by an 82 percent majority, voted a \$3,200,000 bond issue for a sewage disposal plant. There had been a great deal of jockeying over the years between city officials and the mills regarding waste disposal.

Kalamazoo now becomes the last city of its size in Michigan to put in a disposal plant after the mills had led the way with their program. Their de-ink wastes plant will produce from 100 to 150 tons of dried suspended solids per day. The city would no longer be able to "pass the buck" to the mills on charges of fouling the Kalamazoo River, so it is getting in the act, too. The city had a half million banked already toward paying its bill and will carry on with a one-mill tax on property every year to build the plant. The vote was a light one, but a big majority approved.

Some Kalamazoo History

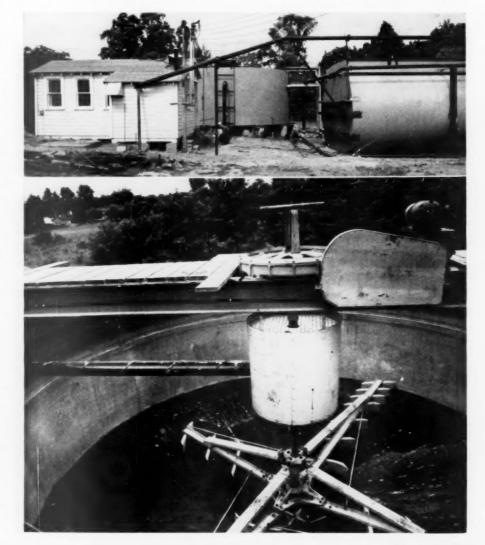
De-inking in the Kalamazoo Valley goes back many years. Previous articles in PULP & PAPER have frequently touched upon the truly fascinating history of the development of this industry.

The predecessor company of Kalamazoo Paper started de-inking in 1866. Benjamin F. Lyon came from New England with the "know-how" and he was a promoter of the first book mill, built at a cost of only \$80,000. The president, however, was J. T. Woodbury, a relative of the Curtenius family which is now prominent in the in-

dustry. Noah Bryant, a founder later of Bryant Paper Co., and George Bardeen, bookkeeper, were employes. The name Bardeen is today found in Mac-Sim-Bar Paper Co. and Max Bardeen, a descendant, is president of Lee Paper, south of Kalamazoo.

They didn't have wood, nor much water, but those pioneers were close to a big Chicago paper market. But the main reason they settled in Kalamazoo and built the fabulous industry there is that they just simply liked the country. They kept their industries out of Wall Street, right from the beginning. Some of the early mills in Kalamazoo started very soon to pay 5% dividends per month and 50% stock dividends in addition!

They didn't have trees—because the lumber industry had preceded them. But it should not be forgotten that the deinking technique, as introduced in Kalamazoo by Ben Lyon and duplicated in the other seven mills in the Valley, has been a tremendous saver of the forests of



AT MICHIGAN PAPER CO., PLAINWELL, MICH., there are essential installations in the demonstration plant for treatment of de-inking waste. Seven paper companies in the Kalamazoo Valley, whose de-ink plants produce 100 to 150 tons of dried suspended solids per day, are under orders to install similar plants. The state requires only sedimentation and removal of turbidity, but these, nevertheless, will be costly installations unless economic uses for the studge are discovered.

ABOVE: OVERALL VIEW at Plainwell showing control building and air blower housing, the primary settling tank provided by Dorr Co. and the aeration tank which is set directly on a gravel bed. The latter unit was engineered by the mills and built by them and includes a comparatively costly system of pumping air under pressure.

BELOW: Closeup of the key unit of the demonstration plant, this Dorroo primary settling tank. All the mills in their new installations will have settling tanks.

America. These manufacturers of book and magazine papers have saved literally millions of trees over nearly a century of re-using paper.

What To Do With Sludge?

But for the mills, there comes now "the \$64 question"-or should we say the \$640,-000 question?

What can they do with all this sludge they are going to accumulate?

These are not the first mills to put in a de-inking waste treatment plant, of course. Bergstrom Paper Mills, over in Neenah, Wis., has just recently completed a \$150,000 plant, the largest of its kind. but it fortunately has a needed fill-in project at a nearby lake end that will take its product for many years and transform a marsh into useful park area. Theirs is the expensive type of plant, as vacuum filters are used.

In New England, Fitchburg Paper Co., Crocker-Burbank Paper Co. and Falulah Paper Co., have put in treatment plants but none has come up with an accepted economical answer to the sludge disposal problem. They have even made ash trays with sludge and given them away-but there's limit to how many ash trays can be used-even when they are free!

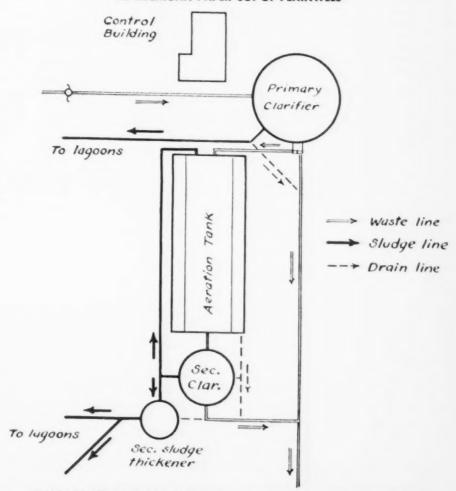
The ideal solution to the de-ink wastes problem it is believed, would be the development of a product that could be put back into the mill. Re-use of the clayjust as chemical pulp mills re-use chemicals-would keep operations self-contained and would not be dependent on uncertain outside markets.

The research work being carried on at the laboratories of the five-year-old Curriculum of Paper Technology at Western Michigan College already has produced a laboratory calcime product which has desirable characteristics of the special clays used in papermaking. These characteristics are (1) particle size, (2) particle size distribution, (3) brightness, and (4) limited abrasiveness. It is admittedly not as perfect in all respects as a book mill would wish to have, but the college researchers can see light ahead.

Dr. Alfred H. Nadelman, soon starting his 6th year as head of the curriculum, former technical superintendent for International Paper at Niagara Falls, is directing and supervising the research work. L. Paul Newton, assistant professor of the paper technology courses, graduate of the pulp and paper school at the University of Maine, is carrying out the investigations. It is interesting to note that in the recent campaign for financing of Kalamazoo city's sewage plant, the same Dr. Nadelman directed newspaper publicity for the community.

The six book mills of the Valley formed their non-profit Kalamazoo River Improvement Co., over three years ago in an effort to find an economic solution to the problem and they jointly built and own the demonstration plant at Plainwell. They inaugurated the work at Western Michigan two years ago with an \$8,500 budget and for 1952-53 boosted that amount to \$10,000. As long ago as 1946, preliminary studies sponsored by the industry were

FLOW DIAGRAM OF DE-INK TREATMENT DEMONSTRATION PLANT AT MICHIGAN PAPER CO. OF PLAINWELL



BASIC DESIGN DATA FOR PLAINWELL DE-INK WASTE TREATMENT PLANT

Unit	Diameter (ft.)	Length (ft.)	Width (ft.)	Water Depth (ft.)	Capacity (eu. ft.)	Detention Time (hr.) ¹
Primary sett. tank	26	_	_	10	5,300	2
Aeration tank		52	14-21	11	11,000	81
Secondary sett. tank	16	***************************************		9	1,800	9
Sludge conc. tank Lagoons:	16	3	1	10	700	15
Primary	_	_	_	3	72,700	904
Secondary	-	-		3	18,000	901

 1 For primary flow of 0.50 m.g.d.; for secondary flow of 0.17 m.g.d. 2 Allows for return sludge flow of 0.083 m.g.d.

³ Hopper bottom. 4 Days.

carried on at Kalamazoo College under Philip F. Morgan, and he has been succeeded by A. J. Palladino, engineer for the National Council for Stream Improvement, headquartered in Kalamazoo, and Mr. Palladino supervised construction and operation of the Plainwell test plant.

Again a parallel can be drawn between these book mills and the chemical pulp industry, both under pressures to dispose of waste, but both without any positive assurance as yet that their big investments are going to return any dividends, let alone even pay off their costs. It probably will be a long time before either happens.

Hope to Attract New Industry

It is hoped that the work at Western Michigan will attract to Kalamazoo a new industry, such as a clay concern, or a building block and lightweight concrete industry. Dr. Nadelman and Mr. Newton have produced at their laboratory lightweight aggregates which may be useful in lightweight concrete blocks or mixtures.

A PULP & PAPER editor visiting the college viewed these products, and some were so light and slowly-absorbent, they were still afloat in water after several weeks. The equipment seen in the laboratory for the work was much more complete than had been available a year ago. It included a new high temperature furnace, a ball mill and flotation apparatus. Incineration at high temperatures has given best results in separating inorganic and organic materials, said Mr. Newton. The product has a high white color, which gives strong hope for desirable use as a filling or coating pigment that could go right back into use in the paper mills.

Small amounts of the sludge from Plainwell, are used at the college. This comes as a grayish mixture, mostly clay mixed with carbon black, calcium carbonate and some fiber debris.

Even if products for re-use can be made, Kalamazoo industry leaders fore-see the possibility that the mills could not use all that could be made. Therefore, the college investigators are not overlooking the other approach—to find uses for other industries. There is a growing demand for the lightweight aggregates for specialty concrete mixtures and for low density building blocks. Asphalt tile and

rubber goods are other possible supple-

mentary markets.

The Plainwell demonstration plant consists of a primary settling tank, aeration tank, secondary settling tank, secondary sludge concentrating tank, primary and secondary sludge-drying lagoons and a control building. An accompanying diagram shows the layout. After over two years of operating the demonstration plant, it has been decided the minimum requirements of the state regulation would not require such an elaborate plant. Secondary settling was not required.

PULP & PAPER (June 1951 issue, page 64) reported in detail on the final order which was issued in May 1951 by State of Michigan Water Resources Commission. This directed the Kalamazoo Valley mills to "reduce pollution in the Kalamazoo River." April 1, 1953 was the deadline for submission of plans and deadline for compliance is June 1, 1954. Altogether 14 mills in the Kalamazoo Valley were affected by state orders; the others, however, are not operators of de-ink plants but are board and parchment mills. And the orders for them involved installation of savealls, etc.

There is no doubt the de-ink plants will accumulate staggering amounts of sludge. Allied Paper Mills estimated their two plants alone would produce sludge in wet state that runs in the neighborhood of 1,000,000 lbs. per day.

MICHIGAN STATE TABLE

Showing Calculated Sludge-Forming Solids and De-Ink Plant Data of Kalamazoo Valley Mills

(Based on 10 lbs. of solids per ton of product)

Co. and Mill	Daily Water Usage (In ths. of 5-day B.O.D.)	Lhs. of Suspended Solids
Kalamazoo Paper		
Michigan Paper	4,200	34,300
Rex Paper	2,700	10,300
Allied (King Div.)) 16,300	53,700
Allied (Monarch)	10,000	31,900
Hawthorne Paper	1,900	6,900
St. Regis Paper	11,100	76,500

EDUCATING A MANAGEMENT

WHAT COURSES SHOULD a young man take in college if he wishes to be trained for management positions in the pulp and paper industry?

A new "Option Two" course is now set up in Western Michigan College, Kalamazoo, Mich., just for that specific purpose. It will be offered this next fall.

Option One is the designated course for "preparation for technical and manufacturing areas in the paper industry." Generally, this is not new. But Option Two is. This latter course is entitled "preparation for sales and management areas in the paper industry." Both lead to bachelor of science degrees and around 60 students are expected to enroll in the two combined.

In the first year the new course requires: Communication; trigonometry; college algebra; analytic geometry; mechanical drawing; orientation to paper technology; physical education.

In the second year: Introduction to contemporary society; business studies; general physics; qualitative analysis; quantitative analysis; pulp manufacture; paper manufacture; physical education.

In the third year: Language and literature; organic chemistry; pulp testing; paper testing; fiber microscopy; elements of industrial chemistry; business studies; coloring and filling of paper.

In the fourth year: Language and literature; auxiliary equipment for pulp and paper mills; chemistry and technology of plastics; economics, business studies; converting of paper and paperboard.

Credits are given for mill work in the

For this new Option Two course (sales

and management job preparation), these are the suggested business studies: Accounting to advanced accounting, industrial cost accounting, business correspondence and report writing, business statistics, office organization, business law, business insurance, personnel administration, management problems, salesmanship (and advanced salesmanship), sales management, advertising, credit management, marketing and market analysis, purchasing principles and practices, office management, job analysis and training programs.

Recommended electives: Slide rule, engineering materials, metal processing, personnel relations, introduction to industrial psychology, foremanship training, time study and job analysis, production control, introduction to electronics, electrical measurements, elementary statistical practice and introduction to statistical theory.

The older Option One course is more technically slanted. For the first year, however, it is the same. The second year brings in calculus, mechanics, electricity and economics instead of contemporary society, business studies and general physics. But these students won't escape the contemporary society course, for they get it in the third year, when they also get wood chemistry instead of business studies. The fourth year find the courses farther apart, with Option One including physical chemistry, bleaching, pulp purification and de-inking, and a thesis thrown in, and similar to Option Two only in language and literature (German recommended here), mill equipment, and the plastics and converting courses.

Graz Institute Will Be Dedicated in July

William A. J. Mitchell, of Central States consulting engineering firm, Appleton, Wis., and Dr. A. H. Nadelman, head of the paper technology curriculum, Western Michigan College, are to be speakers at the dedication July 2-4 of the Institute of Pulp and Paper Technology, new addition to the Graz Institute of Technology in Austria.

Dr. Karl Adamik has been chosen to head the new institute, which was built and established with the aid of ECA-MSA funds from the United States. An extensive rehabilitation program with these funds has modernized and greatly increased production in Austria, financing three new mills, doubling or enlarging others (see Pulp & Paper Review Number 1952, pages 100-106 for complete report).

Dr. Edgar Morath, from the FAO of the United Nations, Rome; Dr. Heinz Corte, of Germany's Waldhof Co.; Dr. Guido Pomilio, inventor of the Celdecor-Pomilio bleached straw or bagasse pulp processes introduced in several countries in recent years, and others, were also slated to be present at the institute's dedication.

Dr. Nadelman To Attend European Meetings and Events

Dr. Alfred H. Nadelman, head of the paper technology curriculum at Western Michigan College, is taking leave this summer to attend two important industry events in Europe—the 13th International Congress of Pure and Applied Chemistry in Stockholm and the dedication of a new Pulp and Paper Institute at Graz, Austria.

He will leave Kalamazoo June 26, be in Graz July 2-4, spend three weeks in England on a consulting project, then attend Stockholm events July 29-Aug. 7, spend three weeks more in Holland, Belgium, France and England.

Holzer To Attend Stockholm Meeting

Dr. Walter F. Holzer, assistant to the vice president of manufacturing, Crown Zellerbach Corp., San Francisco, Cal., will attend the World Wood Chemistry Symposium July 29-Aug. 4 in Stockholm. Dr. Holzer also will present a paper at the July 27-28 meeting of the F.A.O. committee on wood chemistry in Stockholm on use of sulfite liquor for agriculture, jointly authored by Drs. W. M. Hearon and J. B. Martin, of CZ Central Research.

Can any of these 🗹

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Kalamazoo Paper School HAS 55 STUDENTS-2 RESEARCH PROJECTS

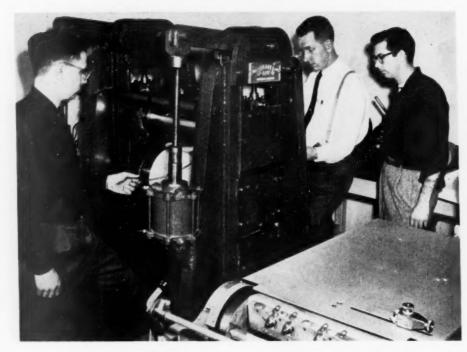
THE PRECEDING ARTICLE regarding developments in the Kalamazoo Valley in attempts to solve the de-ink plants waste problem emphasizes the important role shaping up in this work for a still very young paper "school" at Western Michigan College.

In the lingo of the world of education, this institution, now five years old, still hasn't the right to call itself a "school," but to all intents and purposes it is one. It has become, in that short space of time, one of the important ones serving the pulp and paper industry and the young students who aspire to careers in this industry.

In Nov. 1951 issue of Pulp & Paper, the story of a visit to this new division of Western Michigan College was reported. A return visit this past month reveals what rapid strides it has taken.

There have been three big reasons for this—at least these seem to be the reasons

INSTALLATION OF SHARTLE-DILTS 3-TON HYDRA-PULPER, in background in this picture, in laboratories of Paper Technology Curriculum at Western Michigan College, Kalamazoo, Mich., called for a little ceremony. These gentlemen were present (I to rl: LEN BRICE, Director of Industrial Relations, Black-Clawson Co. (of which Shartle-Dilts are divisions); HAYDEN TAYLOR, Director of Adv., Black-Clawson Co.; L. PAUL NEWTON, U. of Maine paper school graduate and Asst. Prof. of Pulp and Paper Technology at Western Michigan snice July 1951; DR. ALFRED H. NADELMAN, now beginning his 6th year as Head and Prof. of the Paper Curriculum at Western Michigan; JOHN GOLDSWORTH, Bldgs. and Grounds Supt., Western Michigan; O. W. CALLIGHAN, Chairman of Laboratory Equipment Committee for the curriculum; ROBERT T. ELIAS, Assoc. Prof. of Paper Technology since May 1952 and graduate of Institute of Paper Chemistry, and FREDERICK B. CURTENIUS, Secretary-Treasurer of Kalamazoo Paper Co. and Chairman of the Advisory Committee for the curriculum.



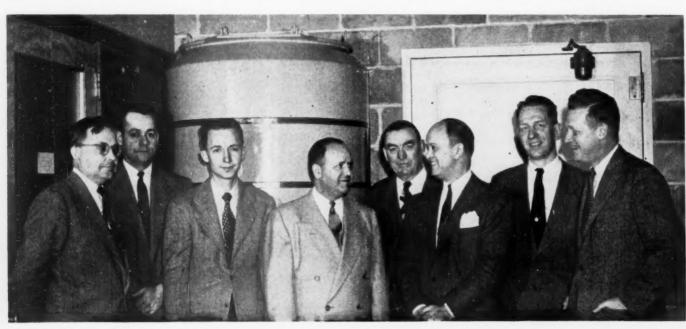
to an observer-for-a-day. One is the truly enthusiastic support given to the school by over 100 mills and mill supply and equipment companies. These are the industry leaders in the dozen paper companies, large and small, in the neighborhood, and their associates in supply and equipment firms from far and wide. They have behaved just like a mothering hen with a new brood of chicks.

Another reason is the tireless devotion to the cause—almost a crusading spirit—of the "Dean," Dr. Alfred H. Nadelman,

NEW EQUIPMENT for Pulp and Paper Technology classes at Western Michigan College, Kalamazoo, includes Wheeler Roll Co. sheet calender, being operated by students, and Vandercook proof press, partially showing in foreground. These are in new air-conditioned laboratories.

whose title technically is professor and head of the curriculum of paper technology, and of his small staff.

And the third factor is the progressive and dynamic character of the college itself, which is this year celebrating its 50th anniversary. In the year and a half since





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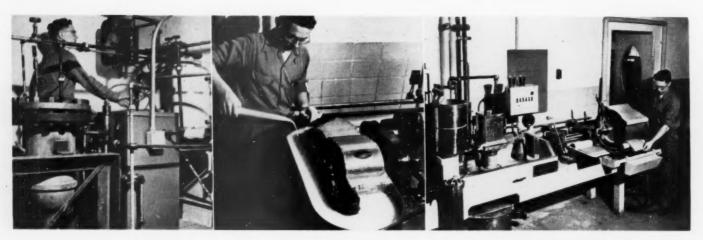


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EQUIPMENT IN PAPER CURRICULUM LABORATORIES in Western Michigan Callege: Left—Michigan Steel Casting Co. of Detroit made this digester. The in-struments are by Taylor and the electric boiler by Livingstone Engineering Co., Worcester, Mass. Midstudent is pouring pulp solution by beaker into Valley Iron Wor's laboratory beater from Apple-Wis. Right-Noble & Wood sheet machine from Hoosick Falls, N. Y., is shown in operation.

a previous visit, several new buildings have arisen, on an extensive new campus that is adjoining and is larger than an older one, still in use. Buildings designed by an outstanding Detroit architect, Ralph Calder including a new chapel with a carillon tower, have been built on extensive grounds on the beautiful rolling green hills in west Kalamazoo. The modern brick building, McCracken Hall, opened in 1949 where the paper curriculum was installed five years ago, already is one of the "older new buildings. In Sept. 1952, the new Administration Building was completed, just across Hays Circle from McCracken Hall.

One of the things of importance that is quickly noted in a visit is the spirit of the paper group. These students know exactly what their goals are-they all have jobs assured them long before they graduate.

The staff, including Dr. Nadelman, will be increased to five this July. Each year there has been a staff member added.

The student body in the pulp and paper classes has been increased to 55. That's a far cry from the little group of six in the first year. The number of graduates in the field now totals 26 and there will be seven more this month.

The floor space has been considerably increased and there are two new research laboratories. One is for the Michigan deinking waste products research, discussed fully in the preceding article. The other is a microbiological laboratory which is working on packaging problems for the U. S. Army, Office of the Quartermaster General.

Increased equipment recently installed includes a new 3 ft. Shartle-Dilts Hydrapulper, a Vandercook printing press, a laboratory waxing and coating machine, two more laboratory beaters, complete new equipment for the microbiological lab including incubator, autoclave, etc., added equipment for the de-ink waste research which includes a high temperature furnace, ball mill and flotation apparatus.

The curriculum has branched into adult education, too, with evening courses this year attended by 111 men from neighboring mills, as well as from other companies, etc. Furthermore, an extensive two weeks' course on statistics in pulp and paper was added, sponsored by the paper curriculum and the mathematics department of the college and TAPPI. It will be held in June with 35 U.S. and Canadian mill men registered

The library for the paper curriculum has nearly reached 1,000 volumes. Just last September it totaled only 600. Some of the most valuable works added were donated by a number of friends in the paper and allied industries.

Pre-registration for the sixth year-beginning next fall-reveals that students from all over the United States, as well as France, Spain and Mexico, are planning to come to Western Michigan. Many are sons of prominent executives in this industry.

World Wood Chemistry Symposium in Stockholm

A symposium on the chemistry of wood and wood constituents will be a featured event of the 13th International Congress of Pure and Applied Chemistry in Stockholm, July 29-Aug. 4, which will draw leaders in cellulose and lignin research from many countries.

Dean Harry F. Lewis of the Institute of Paper Chemistry will give a paper on current problems affecting wider use of wood as a technical raw material. The symposium will be led by two distinguished Swedish savants - Prof. Erk Hagglund and Prof. Holger Erdtman.

Walter H. Swanson, assistant vice president and director of research and development for Kimberly-Clark Corp.; Dr. Walter Holzer, assistant to the vice president, Crown Zellerbach, and Dr. Alfred H. Nadelman of Michigan State College are among Americans who will attend

On Aug. 5-7 the congress continues at the castle-town of Uppsala where Prof. Herman Mark of Brooklyn Polytech heads a symposium on macromolecules. At Stockholm there will also be a section on physical chemistry led by Prof. The

Visits are arranged for delegates to various mills of Svenska Cellulosa A.B., Stora Kopparbergs Bergslags A.B., Billeruds A.B., Mo och Domsjo A. B. and Holmens Bruks och Fabirks A.B.

Dr. Paul V. Sangren **Heads Western Michigan**

Dr. Paul V. Sangren (shown in our cover illustration) has served as president of Western Michigan College since 1936, taking that office Michigan College since 1936, taking that office at the age of 38. Western's history is unique in that in a half century it has had only two presidents. This is its 50th anniversary year.

presidents. This is its 50th anniversary year.

Dr. Sangren's career in education is closely tied with that of Western. He first joined the faculty in 1923 as a member of the education department. A graduate of Michigan State Normal College, Dr. Sangren had taken his master's from the University of Michigan in 1922, and during 1925-26 completed work there for his place.

ph.d.

Returning to Western Michigan, he was successively, director of educational research, chairman of the education department, dean of administration, and, then succeeded Dwight B. Waldo, Western's first president.

He has been active in national education organizations. In 1952-53 he was president of the Association of Teacher Education Institutions. Dr. Sangren spent 90 days in 1949 in Germany for the Army as an expert in teacher. Germany for the Army as an expert in teacher

Addition For Paper School to be Requested

Western Michigan College, Kalamazoo, is asking the state to provide funds as soon as possible for an additional building alongside McCracken Hall to permit an increase in enrollment in its pulp and paper school to about 240 students-an enrollment of 60 per year.

Rough plans are already drawn for an added 10,000 sq. ft. so equipment now on hand can be installed, and space be available for more students when they arrive. Preliminary figures are \$150,000 for building addition, and \$100,000 for equipment and auxiliaries.

Already contributed are \$54,300 in equipment, about half by paper companies and half by supply firms, Pres. Paul V. Sangren told a May 7 meeting attended by representatives of 17 mills and several suppliers of the plans.

Architect's drawing of proposed addition to Mc-Cracken Hall at Western Michigan College.



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SOUTH'S SAFETY RECORD

FIFTY-THREE MEMBER MILLS of the Southern Pulp and Paper Safety Association succeeded in reducing their composite accident frequency rate (injuries per million man-hrs. worked) from 10.3 in 1951 to 9.78 in 1952. In the first half of 1952 the rate was even better—8.87.

At the annual meeting of the association, celebrating its 10th anniversary, at St. Simons Island, Brunswick, Ga., in early May, the group resolved to achieve a further reduction in 1953.

The oft-assumed conviction that a big mill has less chance to show a good record than a small one was disproved when Gulf States Paper Corp., with over three million man-hrs., finished third in 1952, and the two Champion mills, Canton, N.C., with nearly six million, and the Texas division, with nearly four million, finished 6th and 9th respectively. Most man-hrs. were worked by Masonite at Laurel, Miss., with 6,002,347, with the Canton mill second and International at Springhill, La., with 5,032,655

Here's the top 25 in 1952 (not including converting plants):

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	24.	Hudson Pulp & Paper, Palat	ka 2,209	7.24
	25.		1,372	7.29



TO BE BIG HOOKER PRODUCER

R. LINDLEY MURRAY (left), President of Hooker Electrochemical Co., Niagara Falls, N.Y., shown on recent visit to Tacoma, Wash., plant with THOMAS E. MOFFIT (right), Western Manager, with headquarters at Tacoma. This plant, on completion of expansion, will be larger producer of chlorine, caustic soda and hydrogen than Niagara Falls. When new Muskegon, Mich., plant is completed, and additions at Tacoma and Niagara Falls, Hooker investment in plants and equipment will be 4½ times what it was at end of WW II.





CONSOLIDATED WATER POWER & PAPER CO. APPOINTMENTS

F. HAROLD MURTFELDT (left) and EARL M. (MICKEY) McCOURT (right), who have been promoted to top sales positions for Consolidated Water Power & Paper Co. as a result of retirement on May 15 from active sales direction of Vice Pres. Walter L. Mead. Mr. Mead, brother of Pres. Stanton Mead, will continue to serve on the Board of Directors. Mr. Murtfeldt, born in St. Louis, graduate of Washington University there, has been closely associated with Mr. Walter Mead in the Chicago sales headquarters for years, lately as Mgr. of Advertising and Merchant Sales. He will be Manager of the Chicago office and direct enamel paper and plastics sales throughout U. S. His brother, Laurence, is pulp superintendent at Wisconsin Rapids. Mr. McCourt, continuing headquarters in Wisconsin Rapids, Wis., will direct sales of sulfite pulp, paperboard, waxing specialties, sulfite specialties and byproducts. For many years he has been Coordinator of Production and Sales. His contacts over many years with publishers made him one of the best known paper men in that field.

Walter Mead Turns Over Sales Duties

Walter L. Mead, of Chicago, vice president and director of Consolidated Water Power & Paper Co., retired from active sales management of the company May 15. He directed company sales for the past 25 years. He will continue to serve the company as a member of its board of directors.

Mr. Mead said: "My decision to retire

from active participation in Consolidated's affairs is in accord with a personal program which I initiated many years ago. As a stockholder and director, I look forward to a continuing relationship with the company. Consolidated's continued progress and success will always be my principal business interest."

F. Harold Murtfeldt will manage the sales office in the Field Building, Chicago, and direct sales of enamel paper and plastics. Earl McCourt, Wisconsin Rapids, will direct sales of pulp, paperboard, waxing papers, sulfite specialties and by-products.





BURDON AND THIEME IN NEW POSTS

LEO S. BURDON (left), Assistant Vice Pres. of Scott Paper Co., based in Everett, Wash., has been appointed General Manager of its subsidiary, Coos Bay Pulp Co., and will supervise and coordinate operations and management at the Anacorles, Wash., and Empire, Ore., sulfite mills. He had been with Soundview Pulp Co. and Rayonier in past years in managerial capacities.

managerial capacities.

R. IRWIN THEME (right), named Resident Mgr. of the Anacortes, Wash., Mill. He succeeded Charles Card, who went to San Francisco to head Scott Industrial Sales there. Mr. Thieme had been advisor to the Empire and Anacortes mills recently, while serving as Technical Director of the Soundview Pulp Division in Everett. He was with Soundview Pulp Co. previously as Tech. Director.

M. J. Foley Sees Change in World Tour

The world's pulp and newsprint markets are steadily growing more competitive, and enterprising operators will get business only by going after it.

Such is the conclusion of M. J. Foley, executive vice president of Powell River Co., Vancouver, B.C., who recently circled the globe in a two months' trip by plane. His itinerary took him to Honolulu, Fiji, New Zealand, Australia, Hongkong, Singapore, Bangkok, Hongkong, Beirut, Damascus, Rome, Paris and London.

Mr. Foley returned feeling generally optimistic, but with reservations as to the short term future. He feels that a leveling off has been due for some time and is now taking place.

In Australia, Mr. Foley found that while the commonwealth will continue to import some newsprint, the shipment of Canadian and Scandinavian unbleached sulfite pulp from Canada for a mix with eucalyptus groundwood pulp for newsprint will soon be discontinued. As soon as the new N.Z. Forest Products kraft mill goes into production at Kinleith this year, this trade will end.

M. J. "JOE" FOLEY AND MRS. FOLEY made a couple of good friends while in Australia recently in the course of a world tour—a baby kangaroo and a little koala bear. They would like to have brought them home to Vancouver, B.C., with them. Mr. Foley is Executive Vice President of Powell River Co.



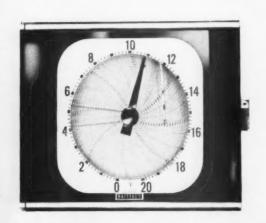


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DYNAMASTER POTENTIOMETERS

feature Continuous Standardization!



BRISTOL DYNAMASTER with round (above) and strip (right) charts feature identical components and units, except for the chart drive.

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Electric Controllers - on-off and all types of proportioning control;

Air-Operated Controllers-on-off, proportional (0 to 30% and 0 to 100%), reset, derivative, and reset plus derivative control actions.

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thanks to Bristol's constant voltage source, which is continuously compared with the voltage of a standard cell.

advantage 2:

Continuous operation . . .

no interruptions for standardization.

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In Canada: Canadian Sumner Iron Works, Ltd., Vancouver, B.C.

SUPTS. 'YOUALLING' DIXIEWARD

CHAMPION'S ROBERTSON SR. AND SCOTT'S DUNNING TO SPEAK

June in Georgia, turkey-hunting, peach-growing "Empire State of the South," will attract hundreds of superintendents, their womenfolk, and their guests to the Superintendents' Annual. This is only the fourth time it has ever been held south of the Mason-Dixon line—June 9 to 11 in the Atlanta-Biltmore in Georgia's state capital.

Southward it goes in honor of the first and only native-born Southerner to ever become president of the association, Gordon Keith Singletary. As the 29th president, he will direct the affair. Born in Biloxi, Miss., he started in the industry in the Elizabeth, La., mill and since 1938 has been at Brunswick Pulp & Paper where he is mill manager. He is 47 years old. He is slated to turn the gavel over at this meeting to Donald R. Dick, born a long, long way from Mississippi Sound—in Bones, Scotland—and now public relations manager for Howard Smith Paper Mills in Ontario.

In 1927 and 1935 the Superintendents went a little way into the South, to Richmond, but the presidents were Yankees—the late Fred Rooney of New York and the late Killey Terry of Maine. Then in honor of an "adopted" Southern, Ray Bennett, they went to New Orleans in 1948. Ray Bennett, now superintending the cellophane division at Pisgah Forest, N. C., but then similarly engaged in the Ecusta paper mill, was the president. But he came there from the Miami Valley in Ohio.

Reuben B. Robertson, Sr., chairman of Champion Paper & Fibre Ce., will be featured speaker at the opening session, discussing the future of the industry.

The general conference of the Atlanta meeting is to have for its subject industrial relations. Lee Bauer of Ecusta, and Walt Morehouse, Nopco, and national chairman this year of the affiliates, are co-chairmen of this meeting. Don Rochester of A.P.P.A., A. J. Miller Jr., Arkansas-born, Tennessee-raised assistant director of industrial relations for all Mead mills; Harrison F. Dunning, Scott vice president, and Robert D. Gidel, of the National Safety Council, will speak.

Mr. Dunning for years has been traveling the circuit of all Scott mills, giving his illustrated talk on "How're We Doing?" His candid and rapid-fire talks with mechanical charts and graphs, tell Scott employes the facts about profits, sales, taxes, wages and he winds up with his "guesstimate" for the next year.

Mr. Miller, who formerly was secretary of the Lake States Pulp and Paper Association, with Appleton headquarters, is an advocate of coordinating the training of employes with engineering planning and of "drawing human beings into your blueprints." He favors calling in personnel managers and industrial engineers in plant engineering involving mill changes or additions.

L. B. Chamberlain of Container Corp., Wabash, Ind., and Frank Sanger, Pusey &





TWO TOP OFFICIALS WILL BE AT SUPERINTENDENTS CONVENTION:
REUBEN ROBERTSON Sr. (top left), Chairman of Champion, will discuss future of the industry, and HARRISON DUNNING (top right), Vice President of Scott, who is widely known for his rapid-fire illustrated talks to employes on company profits, wages, etc., will talk about employe relations.

Jones, are co-chairmen of the paperboard session. John A. McPherson, assistant manager at Mosinee Paper Mills, and Jack Wilcox, process equipment division manager for Electric Steel Foundry Co., Portland, Ore., are co-chairmen for the engineering session. Tom Coldeway of St. Joe Paper will have an affiliate co-chairman for the kraft session and so will Larry Murtfeldt of Consolidated Water Power & Paper for the semi-chemical pulping meeting. For the sulfite meeting, Walt Sherman, assistant manager of Flambeau, at Park Falls, Wis., and Al Nyitray of Eastwood-Neally, are co-chairmen and the converting session will have Bill Riedel of Kalamazoo and a mill man.

Stone Mountain, only 1,700 ft. high but solid granite; Atlanta's homes, garden, colleges, etc., are among scenic attractions for delegates.

A NEW COOKING TECHNIQUE

A NEW SPEEDED-UP COOKING PROCESS known as Va-Purge has been developed by the Pulp and Paper Institute of Canada.

It already has been used experimentally in Quebec and British Columbia mills. Over 40 companies in U.S. and Canada have taken licenses for its development and commercial use.

Details were to be presented on the experiments at the Summer meeting of the Canadian industry's Technical Section at Saranac Inn, Saranac Lake, N.Y., June 4-6.

Dr. Lincoln Thiesmeyer, president of the Institute, expected necessary protection for various patents would be accomplished be the Saranac meeting time so as to permit reports from mill personnel who have used the process.

From other sources PULP & PAPER learned that essentially the so-called Va-Purge process is a technique which involves the age-old problem of securing rapid and complete penetration of the lignocellulosic material with the cooking chemical. This results in a very much improved uniformity in the subsequent cooking and from that flow a wide variety of benefits in time, yield, production and quality.

The efficiency of the penetration also makes possible the use of some other techniques in cooking which can very materially reduce wood consumption (through much higher yield) and lead to substantial increases in production capacity through markedly reduced cooking cycles.

The process is applicable to any type of chemical or semi-chemical pulping. It has been applied and tried at mill scale for quite a range of pulp types and grades during the past five years. Two mills, one DR. LINCOLN THIES-MEYER, President of Canadian Pulp & Paper Institute, which has developed VA-PURGE Process.



using straw for board and the other producing sulfite, have had their entire mill on the Va-Purge system for more than a year.

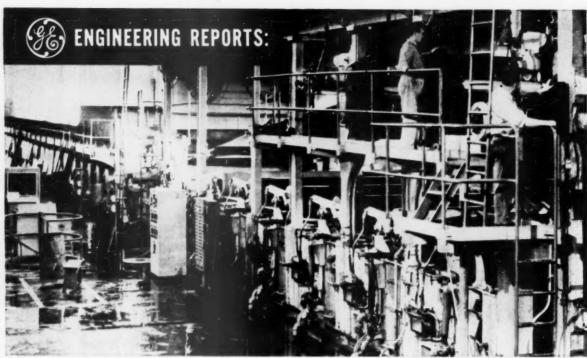
The extent to which the benefits of this technique can be derived will vary considerably with the equipment setup. Each mill is a separate case, but in general the introduction of Va-Purge does not involve major new plant investment.

Over 40 companies in Canada and the U.S. have taken licenses for its development and eventual commercial use. The number of licensees is growing constantly and at the present time a great deal of interest is being manifested in this process by companies in other parts of the world.

It is believed that the Va-Purge system offers particularly striking advantages when used in connection with continuous pulping. This has been under study and equipment modifications to make it possible are being designed.

Man uses paper more than any other commodity except water. You are in an indispensable industry!

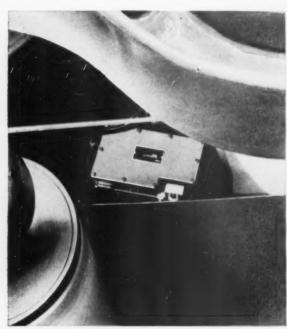




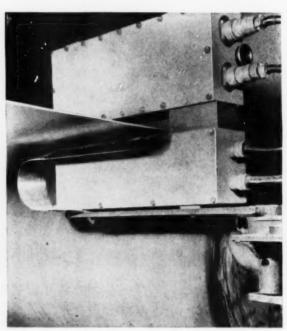
OPERATION—fast, convenient. At Fibreboard, G-E sectional drives keep machines at maximum production—maintain draws accurately, respond to adjustment quickly.

MAINTENANCE—machine outages reduced. For co-ordinated maintenance, sections can be operated independently or together. Components are reliable, need only routine attention.

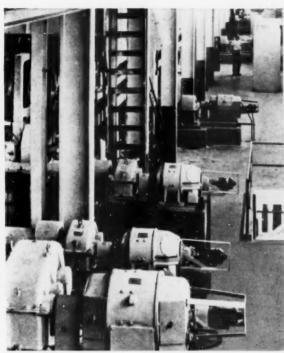
Drive flexibility at Fibreboard helps



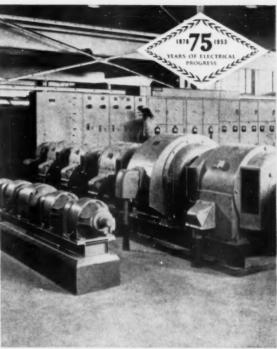
ADAPTABILITY—meets changing operating techniques. A G-E paper tensiometer like this was readily installed to control paper tension automatically at Fibreboard.



Another new production equipment at Fibreboard is the General Electric beta-ray gage, above. It measures paper basis weight continuously without touching the sheet.



INSTALLATION—costs less, takes less space. G-E sectional drives make back side of machines more accessible—provide for more efficient machine operation and maintenance.



Further, because the motor-generator sets and compact G-E control (above) are located away from the machines, valuable production-area floor space is saved.

keep output and quality high

Low installed costs, high production continuity, increased paper-machine adaptability provided by two G-E multiple-generator sectional drives

Fibreboard Products Inc. produces board in their mill at Antioch, Cal., on a cylinder machine and a Fourdrinier machine, both equipped with General Electric multiple-generator sectional drives. Here is what Fibreboard says:

1. Installation was less expensive. Compact G-E drives went into place easily, quickly—made back sides of machines more accessible. To save floor space, motor-generator sets and control were located away from machines. Result: lower installed costs.

2. Operation is convenient, precise. Precise draw and quick slack take-up control mean quick, accurate machine adjustment. Fast, regenerative braking and reversing, and smooth, fast starts reduce lost time due to grade changes, breaks, etc. Section ammeters give visual check for many paper-making variables. Result: increased high-quality production.

3. Machine downtime for maintenance is reduced. Routine maintenance for felt and wire changes is speeded—any section can be operated independently. Preventive maintenance techniques are used during routine shutdowns, since section ammeters often indicate mechanical difficulties before they arise. Result: greater production continuity.

4. Drives keep pace with growth. Because of the inherent adaptability of G-E drives, future machine changes or re-arrangement can be made at minimum investment. New production equipments like the tensiometer and draw indicator can be readily applied. Result: flexibility to meet changing markets.

Contact your G-E sales engineer at the nearest G-E Apparatus Sales Office for more data on getting the same improved performance from your paper machines. General Electric Company, Schenectady 5, N. Y.

Engineered Electrical Systems for Paper Mills

GENERAL ELECTRIC



- IT IS STILL AS MODERN AS IT WAS FIVE YEARS AGO

(The company name in this article's heading is a reproduction of Moraine Paper Co.'s official signature—used in labels, letterheads, advertising, etc.)

WHEN MORAINE PAPER CO., Division of The American Envelope Co., was built in 1948 at West Carrollton, in Ohio's Miami Valley, it was hailed as one of the few really new, fine grades paper plants in the world in architectural style, design and materials of construction. It is still just as modern as it was five years ago. Its clean-cut,

round-cornered, windowless, tan brick and concrete exterior is still a novel sight on the open plain just east of the main highway, about ten miles south of Dayton.

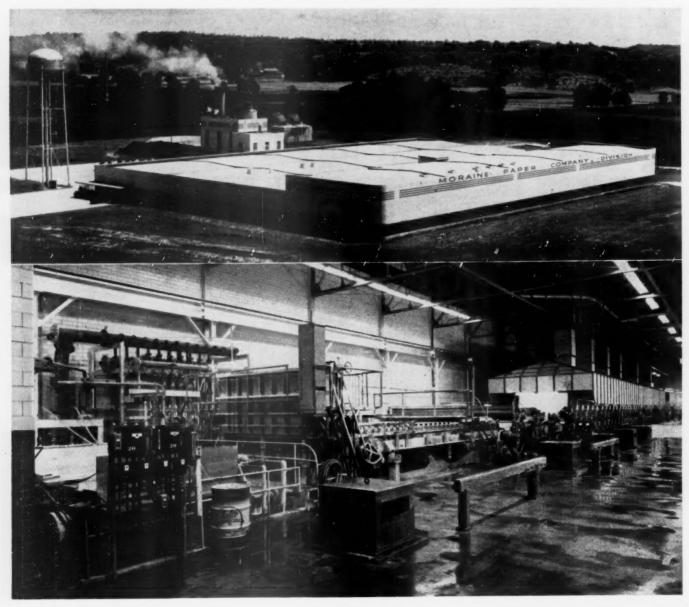
And there have been changes going on inside the plant too. It has been keeping ultra modern there, too, with many improvements and additions, including some equipment unique for this industry.

Incidentally, the unusual physical structure of the plant itself has paid off. Within several years, its added cost over a conventional style paper plant was amor(At Top) MORAINE PAPER CO., Division of American Envelope Co., West Carrollton, Ohio. Still one of the modernistic structures of this industry, and keeps up-to-date. Savings in maintenance long since paid for added cost of structure.

(Below)

NALCO DEFOAMING PROCESS

GENERAL VIEW OF 132-Inch Moraine Paper Co. Beloit-type Fourdrinier showing NA-TIONAL ALUMINATE CORP.'s Anti-Defoom chemical in barrel in foreground being fed by Feedrator mechanism into Bird screens.



tized by savings in maintenance, according to the owners.

The interior is of glazed brick and Ohio glazed tile, which, with modern heating, ventilation and air conditioning result in low building maintenance and conducive to healthful working conditions.

Carlton W. Smith, president and treasurer of the American Envelope Co., largest independent producer in that field, similarly directs Moraine Paper Co., executive offices being located at the envelope factory. Mr. Smith came to the American Envelope as a salesman from the Appleton Coated Paper Co., Wisc. The growth of the firm has been steady and strong under his direction.

Nine months after Moraine started up, Carl Magnus, previously associated with the Wausau Paper Mills of Wisconsin, as vice president and general manager, joined Moraine as general superintendent of all plant operations and compay director. We could devote a whole article to his colorful career through the technical, operating and management phases of the industry during which he has rehabilitated a number of pulp and paper properties as well as serving as a consultant to the paper and allied industries.

Other officials and directors of Moraine are Horace C. Tracy, vice president and sales manager; Ray P. Bertschy, secretary; and Harley L. Werth, assistant secretary.

The plant staff as reorganized by Mr. Magnus has contributed a number of noteworthy innovations. William H. Hipshire, formerly of the Monsanto company is plant engineer; Victor E. Casper, previously with the Beloit Iron Works is maintenance supervisor; Charles H. Piper of Maine and Wisconsin is supervisor of stock preparation; William Martin, chemical engineer came to the company from Ohio State University and the Appleton institute of Paper Chemistry; Robert

CARLTON W. SMITH, Pres. and treas. of American Envelope Co., fills same positions for Moraine.

CARL MAGNUS, Gen. Supt. of Moraine Paper Co. Plant Operations and Director of company.

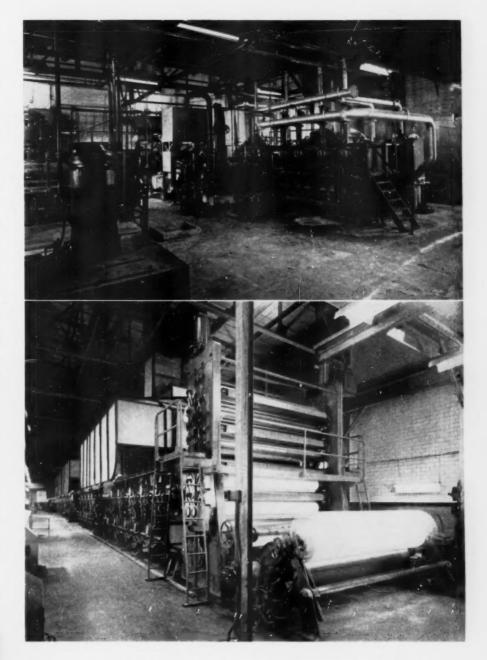




Knowles, machine room supervisor, is widely known throughout the East and Mid-West as a fine paper maker; Paul Rockey, night superintendent, has grown up with the company with 30 years service.

Modern Power Plant

Moraine produces its steam and electrical energy requirements in a modern power plant. Coal is conveyed to a 125-



ton bunker by a Webster bucket elevator and conveyor system. The Babcock-Wilcox two drum boiler with water cooled walls is rated at 70,000 lbs. of steam per hour at 420 psig—625°F with flue gases entering at 675°F and leaving at 370F and is fired by a Westinghouse underfeed multiple retort stoker, turbine driven with motor stand-by. Ashes and fly-ash are handled by United Conveyor Corp., conveyors. Feed water serviced by Goulds turbine driven pumps. Feed water is heated to 355 through a counter current economizer.

Make up water is treated in a Cochrane softener and filtered through Zeolite filters.

The power plant furnishes steam at 420 psig to drive the main power turbine generator unit of 3750 KVA—120 lbs. extraction. Steam supplies a 440 H.P. variable over-speed turbine driving the paper machine. 30 lbs. steam is used for drying and general process work. Power

(Top) DE-INKING PLANT at Moraine Paper Co. Shows bleachers to left, Jonsson (Bird) screens and Sharile Hydrafuge in middle and Bird Dirtecs and final wash to right.

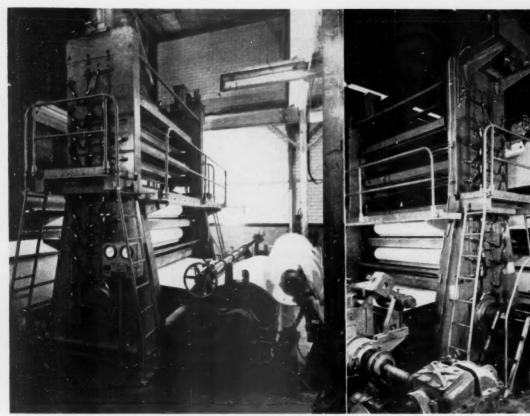
(Bottom) DRY END OF 132 In. Machine at Moraine, showing Black-Clawson 10-roll calender with Vickers oil hydraulic controls. Machine is served by α rope-type reef.

plant was instrumented by Bailey Meter Co.

Smooth Flow of Material

On entering the Moraine mill and following the sequence of operations, one is impressed with the cleanliness, good housekeeping, the simple smoothness and direct flow that materials move into the plant at one end of the mill and finished product goes to storage, freight car or truck with a minimum of back haul or handling.

The storage space for market pulp and other materials is extensive. Materials



TWO VIEWS OF NEW BLACK-CLAWSON CALENDER at Moraine Faper Co. At left is tending side view of ten roll-stack which has Bird Vic.ery doctors and Mason-Neilan control recorders positioned on panel.

AT RIGHT—Backside view of new Black-Cawson Calender at Moraine showing Vickers hydraulic oil lift system which is described in detail in accompanying article.

handling railroad and truck facilities are efficiently laid out. Most of these original installations were described in the story of the new mill which was published after its start-up in PULP & PAPER.

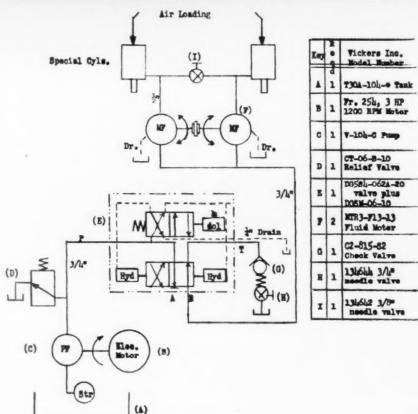
Moraine has a Shartle-Dilts stock preparation system including a 16-ft. Hydrapulper, three No. 4 Hydrafiners, two No. 2A Jordans, two cycling chests and machine chests, all electrically controlled and operated from a central panel board.

The original pulp bleaching plant has been converted for reprocessing of high grade secondary fibers with the addition of a cooking Hydrapulper, counter-current washers, Bird-Jonsson Screen, Dirtecs and other accessories.

The 132-inch paper machine has a Beloit type Fourdrinier, two felted presses and smoothing press, size tub, adequate dryers, rope type reel, Cameron winder.

During the past year, new anti-friction bearings have been installed on the dryers, replacing older type sleeve bearings, resulting in cleaner operation and more satisfactory results at higher speed.

Last year a new 10-roll Black-Clawson machine calender stack was installed. This stack has several unique features very desirable where a variety of finishes are required. All rolls are equipped with antifriction bearings, Bird doctors, and Vickers hydraulic oil controls. Mason-Neilan control recorders are positioned on a panel on the operating side of stack. The design and controls permit rapid change



Moraine Paper Company's Calender Lift System—Shown In Diagram

The hydraulic system consists of Vickers units assembled to provide hydraulic lifting and lowering of the calender rolls. Actual loading of the calender rolls during the paper manufacturing process is done by means of air on the head ends of the special cylinders. The system operates in the following manner:

the head ends of the special cylinders. The system operates in the following manner:

When the calender rolls are to be lifted, electric motor (8) is started and the solenoid of valve (E) energized. Pump delivery at a maximum pressure regulated by valve (D) is then directed through ports P and B of valve (E) into a pair of (F) fluid motors. The fluid motors are coupled together to provide equal flow to the bottom of the two lift cylinders. For set up purposes, a needle

valve (1) has been provided to equalize the position of the cylinders. When the calender rolls have been lifted to a pre-determined position they are held in place by means of pins or bars manually inserted in the frame of the machine.

machine.

To lower the calender rolls the locking pins or bars are removed and oil is exhausted equally from the cylinders through the (F) motors, through B and T parts of valve (E), over the (G) check valve and through the (H) needle valve to tank. The (G) check valve maintains a 35 p.s. back pressure necessary for proper functioning of the (F) fluid motors and the (H) needle valve controls the speed of lowering.



MORAINE PAPER COMPANY)

THE ultramodera building of the Moraine Paper Company Division of the American Envelope Company at West Carrollton, Ohio, houses equally modern, efficient equipment for fine paper-making. In addition to Nalco 71 antifoain, pictured above being applied at the Bird screens with a Nalco Feedrator, Moraine also uses Nalco 918 in the bleach plant and at the repulper to prevent scale formation throughout the stock system. Nalco 680, applied at the headbox, has been helpful in securing more uniform sizing, higher, more uniform ash content at lower chemical cost, a higher operating pH and better pH control, improved fibre retention, and elimination of wire deposits.

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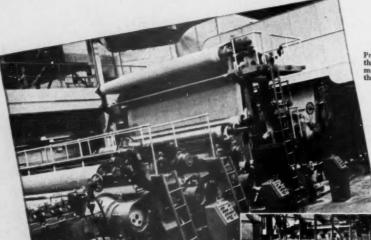
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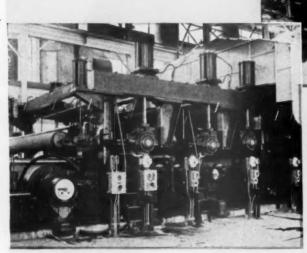
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Press Part with four suction rolls, two in combination with a common center roll in vacuum pick-up arrangement.



Simplex Press Part showing improved Lump Breaker and Couch Draw Roll arrangement.



Puseyjones engineers have assisted in the rebuilding and modernization of papermaking machines in many leading mills, assuring better qualities, higher speeds, bigger profits. Take the Press Part, for instance. Recent developments in Press Sections pioneered by Puseyjones are important to every mill that wants to stay fully productive.

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CHARLES H. PIPER, Supervisor of Stock Preparation at Moraine, came there from Wisconsin with Mr. Magnus.

of rolls Rolls are removed through front side. (A diagram illustrates how the Vickers calender lift system operates).

Finishing Room

The spacious, well lighted, air-conditioned finishing room is a paper makers "dream."

One of the two rotary sheet cutters is equipped with 12 roll revolving backstand developed and patented by the Moraine staff. The other cutter is being presently similarly arranged. Mechanical counters are to be installed in the near future. New handling methods, mechanization of trimmer operations are evidence that Moraine is not resting on the laurels or the wide attention it received when it was a new mill five years ago. Moraine has steadily improved the quality of its products, including offset, sulfite index, ledger, cream postcard as well as its envelope papers.

Woman President of Pulp Firm Dies In Longview

Mrs. Florence Lynch, who was president of Lynch Pulp & Timber Co., and vice president and director of Pacific Paperboard Co., both of Longview, Wash., and the only woman on the advisory board of the Pulp and Paper Section of NPA, died April 29 at the age of 62 in Longview.

She was active in management of the pulp and paper firms for 8 years. Her home was in LeMars, Ia., though she spent much time in Longview, and she was Democratic national committeewoman from Iowa and member of the committee executive. Burial was in Iowa.

Rhinelander Tech. Director Southern Technical Leader

DR. WILLIAM R. HASELTON (left) is new Technical Director of Rhinelander Paper Co., Rhinelander, Wis. He is a graduate in chemical engineering from Rensselaer Polytechnic Institute and obtained his ph. d. at the Institute of Paper Chemistry in Appleton, Wis.

MALCOLM B. PINEO (right), Technical Director of Brunswick Pulp & Paper Co., in Georgia, elected new Chairman of the Tappi Southeastern Section at Savannah meeting in May. He has been with Scott many years, in Chester, Pa., and on Pacific Coast before going to Brunswick.



WOOD PRODUCTS BDG. FOR SYRACUSE

Construction of a \$3,000.000 Wood Products Building is to start this year at State University of New York College of Forestry at Syracuse. Funds were appropriated by the 1953 Legislature.

The structure will be devoted to instruction and research on forest products. This decision expresses the college administration's realistic recognition of recent years' rapid growth in industrial forestry activity. It also expressed such recognition by establishing a curriculum in plastics technology in 1950, organizing departments of forest chemistry and forest economics in 1952, and expanding its longestablished departments of pulp and paper technology, wood technology and forest utilization. Facilities of the latter two departments and the department of forest chemistry will be in the new building.

The site was acquired in 1951 from Syracuse University, where the College of Forestry has been located since it was founded in 1911. The three-acre location, easily accessible, is immediately adjacent to the western side of the college's nine-acre campus. The campus already contains two major classroom-office-laboratory buildings, plus ten other laboratory and service structures.

Architectural planning and blueprinting have been completed, Dean Hardy L. Shirley reports. He was intimately involved in planning before being named dean last July. In recent months, liaison with other state offices concerned in the plans has been performed by Dr. Edwin C. Jahn, associate dean.

DEAN HARDY L. SHIRLEY (left), Dean of New York College of Forestry. Model of new Wood Products Building to be built on campus at Syracuse this year, for research and instruction in forest products. DR. EDWIN C. JAHN (right), Associate Dean of the College. With 96,000 square feet, the building will be the largest at the College of Forestry. Bray Hall, built in 1917, has 69,984 sq. ft., and Louis Marshall Memorial, built in 1932-33, has 76,367.

Equipment will include many laboratories and instruments of unusual interest. An electron microscope lab will enable research on cell wall and fiber structure involving sizes vastly smaller than visible with optical microscopes. An x-ray lab will permit analyses of arrangement of cellulose and other molecules in woody tissues and rayon and other products. Molecular sizes and behavior of cellulose will be examined with an ultracentrifuge.

Application to paper and wood of cellulose and wood plastics and synthetic resins will be studied in the plastics lab. The hydrogenation lab will analyze lignins under high pressure of hydrogen. Studies of rayon and cellophane will be made in the viscose lab. Special facilities relating to the polymer and plastics labs will include a complete paper coating machine, flexible enough for any type of coating method.

A one-floor wing will be exclusively for wood utilization and timber physics laboratories. It will contain wood working equipment, including some under instrument control. An electronics lab will enable studies of high radio frequency gluing. Other facilities will include timber preparation, preservation, gluing, finishing piywood and veneer, and dry kiln labs, housing four types of kilns.

The timber physics lab will be equipped for physical testing of wood and non-destructive testing by sonic and ultrasonic sound waves. Microtechnique, photomicrography, wood anatomy, and dendrology labs will be included in wood technology facilities.







I.P. SPELLS B-I-G IN PAPER WORLD

IN ANY APPRAISAL of the progress of the pulp and paper industry, it would be unwise, to say the least, to overlook International Paper Co., with its Northern mills, Southern Kraft, Canadian and New Brunswick divisions, its rapidly expanding container and bag divisions, and plywood and insulating board plants in Canada.

I.P.'s gross sales in 1952 were \$631,-420,992, less than \$6,000,000 off from 1951.

Ranking in second place in sales in North America's paper industry is Crown Zellerbach Corp. with sales of \$245,998,220 in its last annual report (year ended Apr. 30, 1952), followed by Container Corp. of America with just under \$180,000,000.

Only eight other available reports of pulp and paper companies in North America show sales over the \$100,000,000 mark, and these are led by St. Regis, Kimberly-Clark and Scott (since merger with Soundview), in that order. Weyerhaeuser's sales were \$260,001,239, but only \$54,577,391 of this in pulp and board.

So the relative size of I.P. is apparent.



TOP TRIO OF CANADIAN I. P.

NEWLY ELECTED TOP OFFICIALS of Canadian International Paper Co. (1 to r): VERNON E. JOHNSON, elected President; FRED L. ALLEN, elected Vice Pres. and Gen. Mgr., succeeding Mr. Johnson, and S. L. DE CARTERET, former President, elected to newly created office of Brad Chairman. Mr. Johnson, who joined C.I.P. in 1929 and was former Woodlands Mgr., also is Pres. of New Brunswick I.P. Mr. Allen, graduate of Clarkson College of Technology, Potsdam, N.Y., where many paper industry executives were schooled, has been in the industry 30 years, with C.I.P. since 1928, and has been Chief Engineer and Mgr. of Mfg. Mr. de Carteret has been 45 years in the industry, Pres. 7 years.

President John H. Hinman of International says "from present indications volume for 1953 should be about as good as 1952." Rising labor and freight costs caused decline in earnings and will average higher in 1953, he said. But he held hope for a leveling off of labor and material costs and relief from high taxes.

Doubling of the Natchez, Miss., hardwoods-dissolving pulp mill will bring its capacity to 900 tons a day this spring. Before that, total annual capacity of all I. P. mills reached 4,004,000 tons. Timberlands owned and leased by the company now total 17,811,963. Net profit for 1952 was \$52,125,952, down \$4,693,220. Number of stockholders increased by 1,414 to 31,804, and fulltime employes stayed steady at about 35,400.

The trend toward more conversion and more converting plants is significant, and the spurt in milk containers is notable. This is shown in this table on all production of I.P. mills and plants:

			1942	1952	1951
United States					
Kraft container board (unbleached).			831,929	1,433,451	1,476,713
Kraft wrapping, bag and specialty paper	`S				
(unbleached)			288,596	345,182	374,138
Bleached kraft paper and board .			135,012	454,018	382,946
Dissolving and other kraft pulp for sale			168,617	174,328	155,862
Total kraft board, paper and pulp	,		1,424,154	2,406,979	2,389,659
Groundwood specialty papers			183,781	208,033	221,684
Book and bond papers			136,669	134,448	157,343
Other pulp and paper grades		*	55,475	25,278	58,396
Total United States	4		1,800.079	2,774,738	2,827,082
CANADA					
Newsprint		*	494,400	822,806	801,256
Dissolving and other sulphite pulps .			257,680	217,149	261,239
Other pulp and paper grades			62,785	4,536	5,098
Total Canada			814,865	1,044,491	1,067,593
TOTAL TONNAGE			2,614,944	3,819,229	3,894,675

Pulp figures include shipments to mills of the Companies for their own use as follows: 53,334 tons in 1942; 34.110 tons in 1952; and 44,993 tons in 1951.

							2			
TOTAL TONNAGE								269,167	552,147	631,135
Milk containers and paper products	d mi			us co				28,126*	121,532	118,494
Plywood — Canada							k.	d anima	16,087	15,796
Insulating board -	Car	nada						17,825	39,288	46,579
Grocery, multi-wal	l and	d mis	cella	ncou	s ba	gs		106,453	144,450	181,501
Shipping container	S							116,763	230,790	268,765
								1942	1952	1951

^{*} Includes no production of milk containers; business acquired as of April 1, 1946.

MIMMS PREDICTS ELECTION AT LADIES NIGHT! *!

The Kalamazoo Ladies Night party and dance, annually sponsored by Michigan Superintendents, and their affiliates, drew an attendance of 248 this year. "A good time was had by all," as usual, at the Harris Hotel in Kalamazoo on the night of Apr. 11.

Leon Mimms, who hails from South Carolina, and is now coating mill superintendent at Kalamazoo Paper Co., and his wife, Lillian, presided. In an "exclusive interview," Mr. Mimms cracked: "If I play my cards right I'll be chairman of the Michigan Superintendents next election." (Of course, barring unforeseen developments

he automatically moves up from vice chairman and to get in "training," that's why he chairmanned the Ladies Night).

Jack Dickson, Middle West representative for Stowe-Woodward, was the affiliates group's chairman for Ladies Night.

Mr. Mimms, who will succeed Harvey Hartman, of American Box Board Co., Grand Rapids, was born in Columbia, S.C., graduated from the U. of So. Carolina, and started in the industry in the Dill & Collins mill in Philadelphia. There he met his wife, the former Lillian Mill, secretary to the superintendent of the coating mill. The Mimms moved to Kalamazoo 14 years ago.

AT KALAMAZOO LADIES NIGHT (I to r):

LEON MIMMS, Kalamazoo Paper Co., who soon becomes Chairman of Michigan Superintendents Division and chairmanned Ladies Night; JACK DICK-SON, Stowe-Woodward Co., who was Affiliates Chairman of Ladies Night arrangements and HAR-VEY HARTMAN, American Box Board, completing his term as Chairman of the Supts. Assn. Division.





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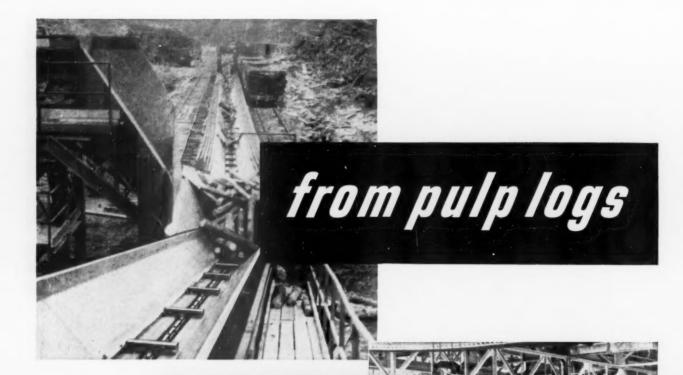
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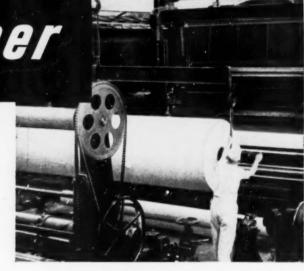


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REX® COMBINATION DUROBAR® CHAIN has inside black links of malleable iron or Rex Z-Metal, and side bars of high carbon steel. These husky chains are great favorites for all types of conveyor service in pulp and paper mills. Eccentric barrel construction makes for better sprocket action and greatly reduces chain wear.



REX WOOD CHIP IDLERS are sloped to a steep 45 angle to greatly increase belt capacity. Chips can be piled higher and loaded closer to the beit edge without fear of spillage. Have same long-life design features as Rex standard idlers.



REX CHABELCO STEEL CHAIN combines reletively light weight with high strength. It is used in both drive and conveyor service . . . can handle heavy loads and withstand severe shock and vibration. For those really tough jobs, you can't beat Rex Chabelco.



REX STANDARD TROUGHING IDLERS are used for wood chip, bark and pulp handling. Roller or ball bearing equipped interchangeable rolls are supported in brackets of unbreakable malleable iron. Triple labyrinth grease seal keeps grease in . . . dirt out.





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REX FLAT SPRAY NOZZLES are ideal for cleaning logs as they emerge from woodyard or log pond. Their hard-hitting, knife-like sprays of water effectively remove sand, gravel, dirt and grit from logs. Special design permits maximum impact value with low water consumption.

REX BUCKET ELEVATORS are widely used for elevat-ing wood chips, refuse and similar material. There is a Rex Standard Bucket Elevate to meet virtually every requirement of the pulp and paper industry. All major components . . . buckets, chains, sprockets, housing, etc. . . are manufactured by Chain Belt Co., assuring you a uniform, reliable, easy

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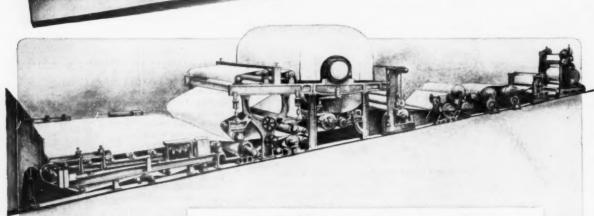
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ROANOKE RAPIDS MILL

COMPLETES 6-YEAR EXPANSION PROGRAM

COMPLETION of a new 6,000,000 gallonsper-day water treatment plant and operation of a new Beloit 246-inch paper machine—one of the largest in the South—has brought to an end an expansion program for Halifax Paper Co., Roanoke Rapids, N.C., that began in 1946 and which has resulted in raising paper and pulp production to 250 tons per day as compared with 1945 levels of 125 tons of kraft pulp and 31 tons of kraft paper daily.

First phases of the Halifax program were reported in the Sept. 1951 issue of Pulp & Paper. At that time modernization had been completed on the woodyard; a new Combustion Engineering recovery unit was in operation; there was a complete revamping of the washing and screening setup; and in process of being erected was a Koppers electrostatic precipitator with 100,000 cfm capacity.

The second phase of the program just completed was carried through at an approximate cost of \$5,800,000. It included a two-story building to house the machine and stock preparation equipment; modern labor-saving finishing and shipping facilities; and a high density storage tank in addition to other necessary auxiliary equipment.

Now One of South's Best

An old mill in the South, the Halifax mill now stands as an example of a modern mill, too. The Roanoke Rapids plant pioneered the sodium sulfate process in the United States, using Southern pine.



ROANOKE RAPIDS MILL of Halifax key men: H. W. ELLERSON JR. (top left), Gen. Supt.; C. L. WILLS JR. (top right), Plant Engineer. M. L. BOINEST (lower left), Paper Mills Supt.; R. S. BELL (lower right), Asst. Paper Mills Supt.







F. D. GOTTWALD (left), President of Halifax Paper Co., and K. F. ADAMS (right), Resident Mgr. at Halifax's Roanoke Rapids Mill.

The mill is said to be first to use tumbling digesters and to provide diffusers for brown stock washing.

The new paper machine has raised the capacity of the plant to 250 tons a day which matches the present pulp mill. The building in which it is housed is designed to permit installation of a second large machine if warranted. The new machine since its start-up after the first of the year has hit speeds of 1450 feet per minute on 40-lb. stock, and on a 24-hour run on 50 lb. stock turned out 266 tons of paper.

Lion's share of credit for conceiving the program for Halifax Paper Co. and pushing it through to completion is due F. D. Gottwald, president, and also head of the parent company, Albemarle Paper Co., Richmond, Va., according to associates. The plans and financing for the program met many difficulties which were overcome principally through his perseverance.

Mill officials directly concerned with the Halifax program include Kirkwood F. Adams, vice president and resident manager; H. W. Ellerson, Jr., general superintendent; and C. L. Wills, plant engineer. Operation of the machine is in the hands of M. L. Boinest, who was transferred

AERIAL VIEW OF ROANOKE RAPIDS MILL of Halifax Paper Co. showing New No. 3 Mill in foreground.

from Albemarle to be paper mill superintendent.

The Paper Machine

The Rust Engineering Co., Pittsburgh, served as engineers and contractors for the final phases of the Halifax program. Beloit Iron Works supplied the 246-inch Fourdrinier machine, designed principally for 20 to 90 lb. unbleached kraft bag, converting, wrapping and other lightweight papers at speeds up to 2500 f.p.m., but which can also make, if desired, boards up to 42 lbs. per 1000 sq. ft. in weight. The forming wire of the machine is 130 feet long and the machine will trim about 226 inches.

A complete description of the machine and component equipment as supplied to PULP & PAPER by Halifax Paper Co. follows this article. This story will deal with some of the specific features of the operation. One of these is stock flow and preparation, with description provided by Mr. Wills.

Stock Preparation System

Incoming pulp at a consistency of 3 to 5% is delivered to the inlet of the 8 x 16 Oliver filter saveall, which also receives excess white water from the machine wire pit. Water drained through the saveall goes to a white water chest from which it is pumped to the various white water showers on the machine and the Trimbey consistency regulators, with excess being delivered through an automatic level control valve back to the pulp mill (see flow chart).

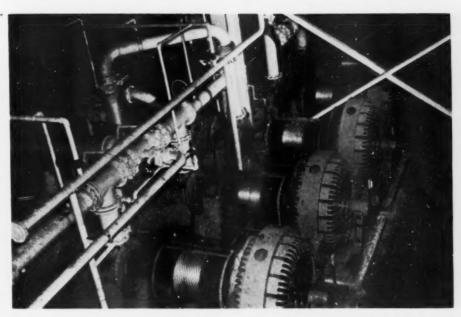
The stock is taken from discharge of the saveall at a consistency of 10 to 15% and dropped into a small chest immediately below it. Dilution water enters the chest with the stock. There is an agitator in the chest and a low head pump to deliver stock to raw stock storage chest below, the pump being necessary to lift stock up over a loop which gives a gravity head to deliver a small sample to the No. 1 Trimbey consistency regulator. This Trimbey measures consistency and controls a water valve in the line by which dilution water is admitted to this stock chest.

In other words, the consistency of the stock in this small chest is regulated to approximately 5% before it is dropped into the large raw stock storage chest. This was thought necessary as manual control of consistency at this point would allow the possibility of getting too thin a stock in the large raw stock storage chest with the chance of spoiling the quality of three to four hours run of paper.

From the raw stock storage chest, stock is pumped to the inlet of the hydrating Emerson jordans. A sample is drawn from this line and piped to the No. 2 Trimbey consistency regulator which controls a water valve supplying dilution water to the suction of the raw stock pump, thus giving a controlled consistency to the jordans which will be set slightly lower than that of the consistency in the raw stock chest.

The four primary jordans are so piped that they can be connected with all four jordans in parallel or with two parallel lines, each line having two jordans in series. If necessary any one jordan can be cut out. All stock leaving the jordans goes through a flow box in which the amount of stock from each line can be seen. Normally stock goes from the bottom of the flow box to the machine chest. However, by closing a valve, it can be diverted back to the raw stock chest which allows recycling. This recycling is intended to be used only when starting up.

From the machine chest, stock is



VIEW FROM THE DRIVE END of the 6 Emerson jordans in the stack preparation system at Halifax Paper Co., Roanake Rapids.

pumped through the two finishing jordans which are piped up for either series or parallel operation. A sample of stock entering the finishing jordans goes to No. 3 Trimbey regulator which measures the consistency and controls dilution water to the suction of the hydrated stock pump. The No. 3 Trimbey will be set to control the consistency at this point slightly below that in the hydrating jordans. All dilution water to the Trimbey regulators is taken from the white water chest. By having consistency controlled at three points, it is intended that each regulator will control a small increment of consistency which should give the regulators a chance to do an accurate control job.

Stock is fed to the described system from a new 70-ton high density storage tank. Of particular interest here, is the fact that an integral part of the building construction contains three of the stock chests. These concrete chests which are part of the building at the wet end of the machine room under the jordans include: a 31-ton raw stock chest; a 10-ton hydrated stock chest; and a 10-ton broke chest and a white water tank.

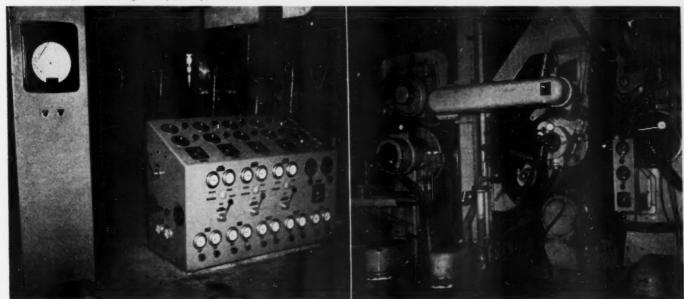
The flexible stock handling system was designed by Rust Engineering to make for rapid changeovers from one grade of multiwall or wrapping to another without loss of time or material.

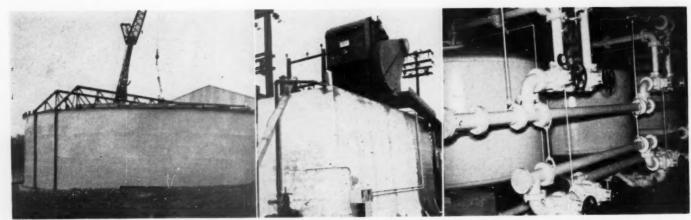
Machine Drives

The drive of the big Beloit is of interest as it is said to be one of four in the country so connected. The entire machine is mechanically connected so that speed of all elements is controlled by the mechanical drive with the wet end helper motors

PRESS SECTION CONTROL PANEL at Halifax Paper Co.'s Roanoke Rapids mill, installed by General Electric with Foxboro speed tachometer at the left. Entire machine is mechanically connected with speed controlled by mechanical drives and with the helper motors designed only for torque control.

SECTION OF BIG NEW BELOIT 246-inch paper machine—one of largest in the Jouth—a) Halifax Paper Co., Roano'ce Rapids. Shown in picture are suction couch, first press and pickup felt.





NEW WATER TREATMENT PLANT at Halifax Paper Co. was being completed at time of PULP & PAPER's visit to Roanoke Rapids. Treatment system is by Graver Water Conditioning Co., with 68-foot diameter flocculation unit, capacity of 4200 g.p.m.

WATER FOR TREATMENT at Halifax from the Roanoke River is taken out through a Chain Belt Co. traveling screen before delivery to treating tank.

THREE GRAVER PRESSURE FILTERS in the water treatment plant of Halifax Paper Co. are equipped with Powell valves.

designed only to control torque, and with no control over speed.

A 1500 hp Westinghouse turbine drives the main drive shaft with Beloit differential drives to these parts of the machine: Wire turning roll; Second cloverleaf press roll; Dryers (three drives to these sections); Calender stack; and Reel.

Also driven by the line shaft are two 300 kw generators which furnish power for General Electric DC helper motors to these sections: Lump breaker roll; Wire turning roll; Wire return roll; Couch roll; Suction pickup; Suction wringer roll; Top transfer press roll; Bottom transfer press roll; and First cloverleaf press roll.

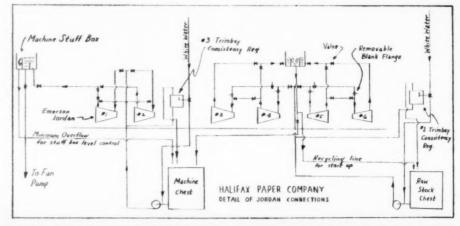
Size and Alum System

Part of the Halifax expansion includes a 15,000 gallon rubber lined storage tank which now makes it possible for the company to purchase liquid alum in tank car quantity; and a 6000 gallon steel storage tank for receiving 70% size in tank trucks. Equipment for the system includes Dur-

iron Co. alum pumps and two 9 x 6-foot dilute alum storage tanks of wood with constant level headbox and automatic pH controller. The size system will include a 9 x 6-foot steel tank for dilute size storage, Blackmer size unloading pumps; Westco dilute size pumps and Hercules size emulsifier.

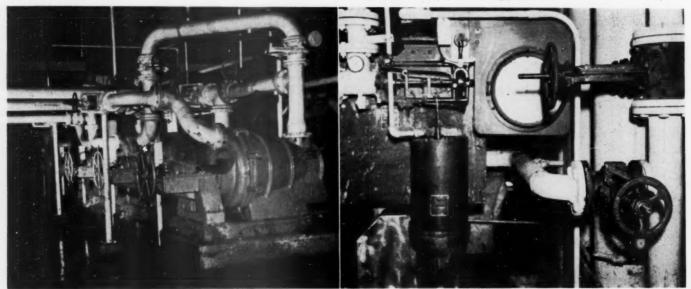
Water Filtration Plant

A special water treatment plant for boiler water was placed in operation in 1950. But as a result of the additional volume of water needed for the new machine, a whole new plant has been engineered and placed in operation by Rust



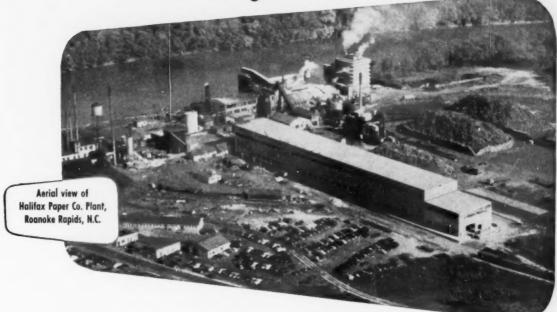
STOCK PREPARATION SYSTEM is one of the features of the Halifax operation at Roanoke Rapids. Integral part of the system are these 6 Emerson jordans—4 primary jordans and 2 finishing, with the primary connected so they can operate in parallel or with two parallel lines.

ONE OF THREE Trimbey consistency regulators in stork preparation at Halifax. No. 1 controls consistency to the raw stock storage chest; No. 2 controls dilution water to raw stock, thus controlling consistency to the jordans; and No. 3 controls consistency to the finishing jordans.





in design and construction



for the PULLP and PAPER industry

Another Rust "first" In design, engineering and construction—for a plant that has had its own "firsts" notable in the pulp and paper industry. It was the first sodium sulphate mill in the United States . . . first mill to use Southern Pine by the new sodium suiphate process . . first to use tumbling digesters . . . first to provide diffusers for washing Southern Pine pulp
. . . its 104" paper machine was the first to make kraft paper from Southern Pine pulp.

Engineering and construction for alterations and additions was The Rust Engineering Company's role in the recent expansion of the Halifax Paper Company's Roanoke Rapids plant.

The project included design, purchasing, construction and installation of complete facilities . . . a building to house a new 246-inch Fourdrinier paper machine and stock preparation equipment, additional finishing and shipping facilities, a high density pulp storage tower, and a 6,000,000-gals.-per-day water treatment plant.

The paper machine operates at speeds up to 2,500 feet per minute. It comprises 33 paper driers, two felt driers, latest type press section and many other modern features.

RUST ENGINEERING COMPANY THE

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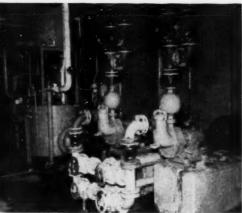
P-2

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June 1953







PART OF NEW CONSTRUCTION at Halifax is this high density raw stock chest and puip conveyor leading to it. The 75-ton concrete tank is located at the end of the old washer and screen building.

HYPOID GEAR REDUCERS for the mechanical drive of Beloit machine at Halifax Paper are located be-tween dryer sections. The main drive shaft is at bottom foreground.

ALUM AND SIZE EMULSIFIER SYSTEMS at Halifax, with Duriron Co. alum pumps in the foreground and Hercules emulsifier in the left background.

Engineering in cooperation with Shephard T. Powell of Baltimore as technical consultant. Under the new system the former settling tank becomes a storage tank.

The new water plant has a capacity of 4200 g.p.m. of settled water of which 400 g.p.m. are filtered for boiler feed water. The Roanoke River, on which the plant is located, is fairly soft but varies widely in turbidity. Raw water is delivered from the river by way of a canal owned by Virginia Electric & Power Co. and a flume which draws from this canal to the plant. The canal has an elevation 30 feet above that of the river so that gravity flow is possible to the pumping system for the

A Chain Belt traveling screen set into a 36-inch line takes water from the flume and screens out sticks and leaves. Water from here can then go to the 68-foot Graver Water Conditioning Co. flocculator or to the pulp mill. Flocculated water is used for the paper mill process and pulp mill wash water with raw river water used for other pulp mill requirements.

The Graver flocculator is set in a steel tank with a concrete bottom. Water to this tank is delivered by a low head Goulds pump. The flocculator, as mentioned above, has a capacity of 4200 g.p.m.

In an adjacent building are chemical storage tanks, chemical feeders and pressure filters for boiler water treatment. It also houses the clear well for filtered water for the boilers, and a suction well from which the flocculated effluent is pumped to the mill. Boiler water is treated through Zeolite softeners to remove hardness.

Building Features

An existing railroad line which served other sections of the Halifax plant had to be torn up and relocated to make way for the new paper machine building. The new siding is now double track to handle 14 cars at a time along a 293-foot loading platform. This loading platform extends across the south end of the building for truck loading, too.

The building itself is of conventional steel, brick and tile construction with ground floor as basement, second floor as machine floor, and mezzanine above machine to house electrical controls and controls for hoods and air circulation. The building is 540 feet long and 76 feet wide with a storage section at the end 80 x 76. The pre-cast concrete roof slaf has 3/4inch Fiberglas insulation and 20-year bonded roofing. There is forced ventilation throughout the building. The east side of the building has steel framework with transite siding to make way for easy opening should a machine be added.

In the same way, the shipping and storage section at the end of the machine is constructed of steel and Transite in case these facilities need be expanded.

Description of Paper Machine and Auxiliary Equipment

Maximum capacity of paper machine–270 tons per day. Design speed–2500 ft. per minute. Width of wire–246 inches, length–130 ft. Breast Roll–32" diameter. Suction couch roll–42 inches diameter. Wire turning roll–32" di-

Beloit patented headbox to operate under Beloit patented headbox to operate under controlled pressure or vacuum. Automatic vacuum pick-up and transfer from wire to c'overleaf type dual press. Thirty-two 60" diameter paper dryers and three 60" diameter felt dryers—all designed for 125 psig steam pressure. Between second and third dryer sections, one breaker stack with 32" diameter rubber covered rolls. Open sided calender stack with 34" diameter bottom roll and five 16" diameter intermediate rol's all of Farreloy. Frames designed for future addition of four more 16" diameter rolls. Heavy duty reel with 36" diameter constant speed drum to handle reel of paper up to 84" diameter.

diameter.

Beloit unwinding stand with water-cooled brake and Beloit double drum winder for maximum 4500 ft. per minute.

Winder with 12 individually driven shear type back slitters and 15 driven rider slitters.

Paper machine hood and exhaust system, roof supply system, bottom felt and hi-jet system cooling control your verificities.

tem, calender cooling, control room ventilation, trim conveying system, building heating by Jamar-Olmen Company.

Mason-Neilan moisture control system. Other

Mason-Neilan moisture control system. Other instrumentation by Foxboro.

144" trim Cameron rewinder with special roll ejectors and driven by 100 h.p. Reliance variable speed drives. 144" Hamblett duplex sheeter. Goulds stock pumps throughout. Nash-vacuum pump in machine room basement. Midwest-Fulton dryer drainage system under paper machine. Noble and Wood stock chest agitators. The fan pump is Worthington rated 25,000 gmp at 45 ft. head, 600 RPM, driven by a 350 h.p. synchronous motor.

synchronous motor.

The Stebbins tile-lined wire pit is shallow with baffles to lengthen the travel of water before going to the fan pump suction well in order to give maximum air removal. Excess water goes over a wire to the large couch pit from which excess water and broke can be pumped continuously either to the broke chest or filter-saveall according to the consistency in the couch pit. Eighteen ft. diameter Shartle Hydrapulper

located directly under calender stock to take dry broke from last dryer calender or reel. Has 78" diameter rotor and 200 h.p. drive motor.

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And here it is! Preliminary demonstrations quickly convinced these companies that the high-speed Bantam not only has abundant capacity for handling logs weighing up to 6 tons—but it does the job at the lowest net cost per hour of any machine in the industry. (See average hourly costs above, based on actual owner records).

Added job flexibility

In addition, Bantam's fast rubber-tired mobility over woodland trails, paved roads and tough off-highway locations permits skidding logs shorter distances to scattered concentration points, for fast loading into trucks. In many instances, too, Bantams follow trucks to town, to speed unloading at mill and re-loading into R R cars—thus eliminating need for extra yard handling equipment.

All-purpose tool

New 6-ton capacity Bantam T-35 works with special heavy-duty 25' to 35' logging boom . . . does a fast job of loading with tongs, sling or wood grapple. New T-35 also has 8 interchangeable attachments, plus new remote control (extra), for economical one-man operation on roadbuilding and maintenance jobs.

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New Bulletin TCR-201 gives you all the facts you want to know about the new Bantam T-35. Send for it today!





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WISCONSIN FOREST MANAGEMENT

By C. G. McLaren

Vice President and Director, National Container Corp., and General Manager of Wisconsin company

THE EARLIEST ACTIVITIES of the state of Wisconsin, as a whole, in forestry matters were those of the state legislature in 1903 which established a Forestry Commission comprised of the attorney general, secretary of state and the state treasurer. This action was followed in 1904 by the appointment of Edward Griffith as the first state forester. We find then that 1953 marks the 50th year of public recognition of forestry in Wisconsin.

These 50 years have resulted in vast changes in landscape economics and attitudes for the land and people that make up and live in the so-called "cut-over" region of not only Wisconsin but her sister states of the Lake States Region—Minnesota and Michigan.

The virgin forests of pine, hemlock and hardwood have nearly all disappeared. Their place was taken to a large extent by desolate stretches of charred stumps and slash, which was considered the natural course to take in subduing the wild land for agriculture. By the 1920's the boom in developing the cut-over into farms had faded and in the wake of the boom was a wave of tax delinquency which involved millions of acres of cut-over and abandoned farm lands. This led to revival of interest in forestry and by 1927 the enactment of legislation which permitted establishment of forest protection districts for fire control. At this time the Forest Crop Law was adopted to ease the taxation on lands devoted to forest production and resulted in the establishment of Wisconsin's extensive county forests. The Wisconsin Zoning Law also appeared at this time which closed five million acres to agricultural development and legal settle-

By the 1930's, Wisconsin was definitely on the road to a rapid recovery in reclothing the 16 million acres of its forest land. By this time the federal forests had been established. Forest fire protection was rapidly shaping up to the science we have today, the wood-using industries had started their industrial forests and extensive plantations and, most important, was the beginning of recognition by Mr. Average Citizen that growing of forest

C. G. McLAREN, Vice Pres. of National Container Corp., was elected a Director last month. He is Gen. Mgr. of the Wisconsin company (Tomahawk, Wis.)



products was a desirable thing from both an economic and recreational standpoint.

Wisconsin Ownerships

Today we find that the 16 million acres of forest land in Wisconsin are classified by ownership as follows: (round figures)

LAND OWNERSHIP ACRES

Private (other than industrial) 10,290,000

County and Municipal 2,520,000

| County and Municipal | 2,520,000 | Federal | 2,100,000 | Industrial | 620,000 | State | 480,000 |

These figures show that one-third of the forests of Wisconsin are in public ownership and two-thirds in private ownership. For the Lake States as a whole, even a greater percentage is in public ownership with 42 percent in this classification and 58 percent in private ownership.

The federal agencies in Wisconsin-The U. S. Forest Service, U. S. Indian Service and U. S. Soil Conservation Service-are all active in the forest management field in their respective areas. The Forest Service has consistently been increasing its annual revenue from the sale of stumpage and miscellaneous proceeds by virtue of the pay-off in management of its lands over the past twenty-five years. The Indian Service has a notable example of good forest management on the 234,000 acre Menominee reservation which is managed on a sustained yield basis by the three graduate foresters employed by the service and the Menominees. The Soil Conservative Service does considerable work in the agricultural regions on farm woodlots in encouraging proper handling of the forest resources of the farms.

At present the state of Wisconsin has forty professional foresters actively engaged in managing the state-owned timber lands as well as assisting in management of the county forests and administration of the Forest Crop Law. State activities also include the operation of the state forest nurseries which produce 18 million trees annually. To date 536,000 acres have been planted in Wisconsin.

The largest class of ownership other than private is that of the 28 counties in northern and central Wisconsin who own over 2 million acres. These acres were practically all acquired through tax delinquencies and were abandoned by the owners 20 to 30 years ago because they did not feel they were of much value. Today we find that the county forests are beginning to yield a considerable volume of forest products and will increase as the forest accrues more growing stock. Many counties are already finding that timber sales are a welcome addition to the county treasury.

The industrial forests of Wisconsin, totaling 620,000 acres, include all phases of the wood-using industries, but the major portion is that of the pulp and paper industry. Of the 61 foresters in private industry, 52 of them are employed by the pulp and paper industry. The sawmills, 1800 in number in the state, own 127,000 acres, with the balance of about 490,000 acres practically all owned by paper mills. The sawmills of Wisconsin are still an important part of the economy of the state, but are producing at only 10 percent of the peak of lumber production that existed 50 years ago. The Lake States Forest Experiment Station places the saw timber growth for Wisconsin at 410 million board feet which is roughly equal to the cut.

Paper Mills Consumption

In 1950 the papermaking industry in Wisconsin, comprising 50 of the 116 paper and board mills of the Lake States, used 1,500,000 cords of wood, of which 467,000 cords came from Wisconsin or only one-

ment.







TWO KINDS OF PLANTING

TWO METHODS OF PLANTING at Nekoosa-Edwards Paper Co.'s planting grounds across Wisconsin River from the mills are shown in these pictures. At left: GEO. KILP, Woodlands Mgr., holds his hand behind a baby pine 4 yrs. old (2 yrs. in seed bed, 2 yrs. in transplant bed), which had been planted by a Lowther planting machine. The ground cover was just split open enough so tree could be inserted. Compare this with middle picture, which shows how Wagler

planting machine opens 5 in. deep furrows. The Wagler is preferred for heavily sodded ground. Shown with Mr. Kilp in middle picture is BRUNO BERKLUND, Forester in charge of Nepco Experimental and Research Work. He is a Unity of Minnesota graduate. In picture at right—A Wagler planter in action behind a tractor. The planter is facing forward. Two small wheels behind him pack the tree in tight, Either Lowther or Wagler will plant 12 to 15 thousand trees a day—more if there are less turnarounds.

third of the state's requirements. The balance came from Canada, Minnesota, Michigan and Rocky Mountain region. The actual growth per year for the pole and sapling timber in Wisconsin has been estimated at 2,180,000 cords. At first glance it would seem that Wisconsin is growing sufficient cordage to meet its needs. This, however, is not the case as the growth figures include all species and the drain figures include only those species which are acceptable to the manufacturing processes. This means that the more desirable species are being over-cut and the less desirable species are undercut. In this latter group are the hardwood and aspen stands.

It is very evident that progress is being made in the greater use of aspen as the consumption increased from 40,000 cords in 1937 to approximately 500,000 cords in the last few years. A rapid change is taking place in greater use of the northern hardwoods for pulpwood and the next 15 years should see an increase in northern hardwood consumption comparable to the last 15 years in aspen.

For our own management plans at National Container Corp. in Wisconsin, we have the aim of eventually producing 50 percent of our wood requirements on our own lands. At the present time on our 90,000 acre industrial forest we are producing 10 percent of our requirements and have a potential of at least 40 percent when our growing stock is built up and all parts of our forest have been operated through several cutting cycles. Our cutting plans are aimed at removing only the

New Planter on Allis-Chalmers Tractor

THIS RECENT PLANTER DEVELOPMENT at Nekoosa-Edwards Paper Co. can plant up to 87,000 young trees in an 8 hour period. It plants five rows at a time and replaces three two-row planters. It is a compact integrated unit built around Allis-Chalmers Model G Tractor. Its rows are uniform with plants 1½ in apart. Front planting wheels and shoes are hydraulically lifted, speeding up turn-arounds. Rear set is manually controlled. It has a 6-man crew, five of them planting in front and back. Cultivating equipment can be substituted for planting. Harry Liebeg, Chief Mechanic at Nepco Nurseries, and his aid, Richard Anderson, designed the machine.

mature age classes as well as the salvage of all timber blown down by storms. All of our land is within truck haul distance of the mill. The break-down by types on our 90,000 acres of industrial forest is as follows:

Aspen	 ACRES 34,600
Hardwood	
Pine	
Spruce	 3,400
Balsam	 3.000
Swamp conifer	 2,800
Non-productive	
Waste	 13.000

As might be expected for large holdings in the Lake States, over 30 percent of our land is typed as aspen. Of great importance to us, however, is the fact that underneath this aspen will be found younger growth of pine, balsam, spruce and hardwoods. When the aspen is cut, these younger forests are there waiting to take over. Where the conifer understory is lacking, we have been able to secure excellent reproduction of aspen by clear cutting in the dormant season and allowing the aspen root suckers to reclaim the land for the next crop.

Since the start of our forestry program in June 1927 at Tomahawk, we have acquired the acreage we now own and have planted 13,670,000 trees. During this time our forest has grown from a cut-over forest with only a few desirable species to one in which all species can be used in our manufacturing process. There has been a tremendous growth in timber in this period and likewise a tremendous change in the utilization of the forest. The forest economy during the past 50 years has changed from one of sawlogs to the pulpwood economy of today and will be a cellulose economy in the years ahead.

Trees for Tomorrow

One of the most active organizations in the state in promoting sound forest management is Trees for Tomorrow. This is a non-profit organization sponsored by twelve paper mills and four power companies. It was founded in Feb. 1944 to help build a sound forest economy and a storehouse of natural resources in northern Wisconsin. Their program consists of assistance to private forest landowners



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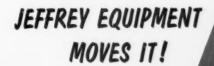
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General view at the right system of Jeffrey Chain handling logs to and fo drums at a large pulpy ing plant.



to grinders. Other types of Sorm veyors are available to handle individual problems in processing.

d sorting room with three Jeffrey eyors. A Flat Belt Conveyor above arries logs to the chippers. A Chain Conveyor delivers logs to the grinders. A second Chain Conveyor returns logs to the drums.

These illustrations show you how Jeffrey serves the Pulp and Paper industry through all stages of preparation. Jeffrey equipment includes Bucket Elevators; Belt, Chain and Spiral Conveyors; Feeders; Re-Chippers; Screenings Grinders; Bark Shredders; Salt-cake Crushers.

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and expansion of conservation education. Since 1944 Trees for Tomorrow has distributed 5,000,000 free trees to owners of forest lands and has prepared forest management plans for 225 people on a total of 100,000 acres. In addition they have established 34 school and 10 memorial forests. During eight months of the year, the Trees for Tomorrow Camp operates at Eagle River as a conservation headquarters where teachers, college students, high school pupils, delegates of civic and service clubs and industry study resource management first-hand. More than 12,000 people have attended these conservation workshops at the Eagle River Camp. In the spring of the year, the Trees for Tomorrow staff operates three planting machines on a rental basis which will plant about 800,000 trees this coming spring.

All of this direct contact with the landowners, educators and students of the state has greatly influenced the thinking and attitudes of people in all walks of life. The trend in conservation thinking is from that of the saving and conserving to that of using wisely so as to provide for the

Trees for Tomorrow has had encouraging results from its many direct contacts with landowners. Trees for Tomorrow foresters are finding that many of the owners whom they have contacted in the past are now going ahead on their own and managing their lands and planting trees without any further assistance. This is a snowballing effect as one neighbor tells another and so the word spreads.

Another important step in Wisconsin was the appointment of the Forestry Advisory Committee to the Wisconsin Conservation Commission. This committee is composed of members who are all active in the wood utilization field and in administration of the public forests. Their duty is to keep the commission up-to-date on all aspects of the wood-using industries and to make recommendations that will benefit the State and the industries.

In 1950 the Wisconsin Forest Survey

was initiated in which county, state and federal agencies and private industry are cooperating in manpower and money to survey 20 million acres of the timber regions of Wisconsin. This survey, when completed, will provide sufficient information on the present and potential wood supply within the state to guide all concerned in policy-making decisions. It will provide, as well, detailed inventory information and growth data on specific forest areas to enable forest managers to practice more intensive forest management.

Goals for the Future

In looking to the future there are certain things in the forest management field which we in the Lake States must all work toward to keep our forests productive and our industries expanding. These

1) Continue our organized fight against forest fires.

Make provision for an adequate insect control program.

Expand and intensify conservation education in our school systems.

4) Intensify our forest research, especially on management of hardwood species for pulpwood and its use by the pulp and paper industry.

5) Provide for an organization which can keep our forest inventory data accurate and up-to-date.

6) Convince our legislators of the importance of tax relief on our forest lands and our industry in order that we can produce and expand according to the normal economic laws.

SELF-SUSTAINED WISCONSIN IN SIGHT - GEO. KILP

In connection with this article by Mr. McLaren, a Pulp & Paper editor who called recently on George Kilp, veteran woodlands manager of Nekoosa-Edwards Paper Co., and an outstanding pioneer of good forest practice in the Lake States, was handed a report from the Lake States Forest Experiment Station which shows:

Hardwoods (aspen, etc.) pulpwood production in the Lake States has climbed from only 327,000 rough cords in 1942 and only 262,000 in 1943 to 1,025,000 in 1951. That is an increase of about three times!

On the other hand, softwoods production in the Lake States for pulpwood has increased only from 1,421,000 cords in 1942 to 1,551,000 cords in 1951. Hardwoods have almost caught up.

Total production, adding the out-of-the-Lake States wood (from Canada, Montana, Colorado and some from Wyoming, even) was 2,471,000 cords in 1942 and 3,-050,000 in 1951.

With the radical changes in pulpwood

usage going on, the state of Wisconsin's paper mills should be self-sustaining in 20 years, except for diminishing quantities of spruce required, predicted Mr. Kilp. He said right now the annual pulpwood increment in the state is greater than consumption, but is in smaller diameters. Good forestry, meaning good tree-farming, said Mr. Kilp, will grow one cord to an acre per year, where without it, natural growth is only three-tenths of a cord per acre per year in Wisconsin.

His good forestry practice has saved Nekoosa-Edwards much money in longer freight hauls for wood. Mr. Kilp's "monument" just across the river from the Port Edwards mill is the largest private pulpwood nursery in the Lake States—40 cleared acres surrounded by a "deerproof" 8 ft. fence and with 9½ million planted trees within it.

Nekoosa-Edwards' actual timber holdings in and out of state are now some 120,000 acres.

A TREE PLANTER FOR ROUGH TERRAIN

THESE PHOTOS BY PULP & PAPER on a visit to planting areas of Nekoosa-Edwards Paper Co., show a new type of tree planter which that company has developed for hilly, rough country. GEORGE KILP, Woodlands Mgr., sitting in the planter's seat, demonstrated how it works. A rod attachment in forepart

of the planter is a hydraulic lift gear which permits the tractor hookup on a pivot, to raise up and down or around to avoid stumps, stones, etc. Each side of the frame can be worked up and down independently, also the planting shoe can be adjusted up and down, and wheels are movable as shown to avoid obstructions.





UNLOADING A CAR IN 75 MINUTES



At the big, Hammermill Paper Co. plant, Port Arthur, Ontario, pulpwood is on the move every minute. Incoming gondola cars of peeled pulpwood must be unloaded in a hurry . . . and a Lorain Crane, model

TL25-K, mounted on a crawler 12' 6" long and equipped with a pulpwood grab, unloads a car in 25 minutes. An average of 16 cars are unloaded to trucks in 8 hours. Each car contains 25 cords of wood. Owner J. U. Calonego, Ft. William, Ontario, reports he is, "Very pleased with the performance of his Lorain."

This is just one typical performance record on one size and one type of the many Lorain machines handling pulpwood in this country and Canada. Capacities range from 6 to 45 tons. There is a wide selection of crawler sizes and rubber-tire mountings to choose from. Slings, grapples, grabs and the exclusive Lorain "Rake" may be had to fit your needs. See your Thew-Lorain Distributor now!

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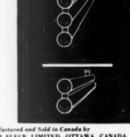
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HOSKINS HEADS FOREST AWARDS

WITH SEARS-ROEBUCK FOUNDATION underwriting the annual Conservation Awards of The American Forestry Association for a three-year period, ROB-ERT N. HOSKINS (left), Chairman of the Awards ERT N. HOSKINS (left), Chairman of the Awards Committee and Forester for Seaboard Air Line Railroad, has announced that the scope of the committee's work will be expanded. Mr. Hoskins is receiving congratulations of FRED E. HORNADAY, Secretary of the AFA, on his plans. Awards will be made at the American Forest Congress Oct. 29-31 in Washington. D. C. in Washington, D.C.

Huntsville, Texas, **Holds Pulpwood Meeting**

Practical approaches to every day problems of forest conservation provided the theme for field meeting for Southern Pulpwood Conservation Association in Huntsville, Tex., May 6, with Major H. A. Maas, Southland Paper Mills, presiding. Registrations topped 125.

Dwight J. Thomson, public relations vice president for Champion Paper & Fibre Co., presented a paper delineating industry's interest in forest conservation.

A. T. Chaulk, soil conservation agent, brought out the thought that the American people hadn't forgotten how to do for themselves. He recounted cooperation extended by bankers and merchants in buying tree planters for use by land owners.

In a panel discussion presided over by R. E. Leslie, International Paper Co. (Springhill, La.), L. C. Sanderson, a Mena, Ark., pulpwood dealer-producer, told how he won the chance to thin a 9000-acre stand of trees. Going into overdense pine he cut a section from a suppressed tree; then obtained a section from another of the same age, and after varnishing the sections to show up growth rings, he took them to the owning company; demonstrated they were losing money by not thinning. Others on the panel were Henry J. Malsberger, SPCA forester-manager, Reagan Smith, and Coleman Cliburn, Texas dealers.

N. W. Sentell, Southern Advance Bag & Paper Co., presided at the banquet.

Forster Heads Hercules

Albert E. Forster has been elected president of Hercules Powder Co. and chairman of it executive committee, succeeding Charles A. Higgins, who resigned under the company retirement policy but continues as board chairman. Mr. Forster was v.p. since 1951 and a director since



PERSONNEL ON KETCHIKAN MILL PROJECT

alpha sulfite and dissolving pulp mill of 300 ton capacity being built at Ward Cove near Ketchikan, Alaska, by Ketchikan Pulp Co., which is scheduled to begin operations in the middle of 1954. Puget Sound Pulp & Timber Co., Bellingham, Wash., and American Viscose Corp., Philadelphia, are principal owners. A dock has been built on the cove and a car barge slip for connection to Prince Rupert, B. C., the Canadian National railhead, and to Tacoma, Wash. It is expected equipment will come in by this means and the pulp storage building construction is being rushed as this will be used temporarily to warehouse motors, pumps and other equipment.

Aside from the progress being made in construction of Alaska's first year-around industry, an interesting sidelight is the galaxy of engineering talent which has been marshalled to work on the project. Lawson P. Turcott, president of Ketchikan Pulp, and Erik Ekholm, vice president of Puget, are in charge of over-all organization and planning. Both are having their headquarters at Bellingham, of course, where they hold similar positions at Puget Sound Pulp & Timber Co.

Harold D. Cavin, chief engineer for the project, has now moved permanently to Ketchikan for on-the-spot direction of construction. Others participating in this pioneer engineering project, located at Bellingham, are:

Eric Ericsson, general superintendent at Bellingham, is assisting on technical mat-

Henry Pratt, project engineer and assistant to Mr. Cavin, came from Union Bag over a year ago to join in the work.

Vic Haner, in charge of drafting, whose duties as plant engineer at Bellingham have been taken over in an acting capacity by Frank Brown, veteran mester mechanic there.

Don Pearson, process engineer, who has long been with Puget Pulp.

Carl Ries, formerly in the pulp industry and more recently engineer for Ed Hines Lumber Co. in Oregon, who is to be plant engineer of the new mill.

Dr. R. E. Brown, for many years in dissolving pulp and recently with Rayonier in Hoquiam, Wash., who is concerning himself with quality control planning.

Arthur Dammann, instrumentation en-

Foundations are on the way for the high gineer, who for a number of years was active in Pacific Northwest work for instrument manufacturing companies.

D. A. Soule, purchasing agent for the Ketchikan Pulp Company, who held a similar position at Richland, Washington, for Atkinson-Jones Company.

M. B. Hodges, project accountant, representing American Viscose, partners with Puget Sound Pulp & Timber Co. in principal ownership of the Ketchikan company.

Planning, engineering and purchasing are all centralized in the offices of Puget Sound Pulp & Timber Co. at Bellingham.



WORK PUSHED AHEAD ON ALASKA MILL

Work on the new Ketchikan Pulp Co., at Ward Cove, near Ketchikan, Alaska—to be the first year-around industry for the territory—is being pressed forward, as reported previously in these pages. Here are some scenes from Ward Cove showing work being done by big cranes.

Harold D. Cavin, chief engineer for the project, is resident now at the mill site. Lawson Turcotte, president of the company, which is a joint Puget Sound Pulp &

Timber Co.—American Viscose enterprise; Erik Ekholm, vice president in charge of overall organization and direction; and others are frequent visitors.

First unit will be a 300 ton high alpha bleached sulfite pulp made by MgO process. Amvisco will get 100,000 tons annually on 20-year contract for rayon, cellophane or nitro-cellulose.

The mill will occupy a 55 acre tract. A dam and 4-mile pipeline for fresh water

TOP VIEW—LORAIN MODEL L-80 CRANE is being used to help construct its own raft in Ward Cove, site of Ketchikan Pulp Co. Mill being constructed. Then the raft floated this crane 60 miles to a gravel deposit where crane is used with dragline to dig and load gravel on barges.

and load gravel on barges.

BELOW—A 2-YD. LORAIN MODEL L820-J SHOVEL is digging in one of large rock cuts for gravity pipeline which will carry water four miles from dam to mill. In some places, 60 ft. cuts were made.

will be constructed. About 400 will be employed at peak construction. And 700 will be required for pulp mill and logging. Ward Cove Builders (Howard S. Wright & Co., Seattle, and Guy F. Atkinson & Co., San Francisco) are general contractors.

Chooses III

SPROUT-WALDRON REFINERS

The Oregon Lumber Company
Dee, Oregon
manufacturers of



Solves Pulping Problems

the S/W way

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Two Sprout-Waldron 36-2 Refiners pulp Asplund fiber from waste wood and bark—for the well-known Simpson Allwood hardboard.

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in pulping processes?

BETTER FIBERS, a Sprout-Waldron technical publication, brings you important information on new and improved pulping processes — especially in semichemical pulping. We will gladly send your copy regularly. Write to Sprout-Waldron & Co., Inc., 32 Logan Street, Muncy, Pennsylvania.

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SPROUT-WALDRON

PULP REFINERS

June 1953

258

77

HIGH QUALITY PULP WITH

.. SUTHERLAND

HIGH YIELD SULPHATE PROCESS

WHAT IT IS

A revolutionary new method for the production of high quality kraft pulp at yields considerably above any possible in conventional kraft production.

HOW IT WORKS

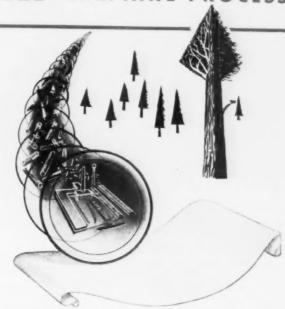
A high yield pulp is first obtained by heating pieces of wood in an alkaline cooking liquor under limited conditions of temperature, time and alkali concentration such that a pulp is formed consisting of a high percentage of fiber bundles which are not substantially separated. This limited cook is blown from the digester to a blow tank where it is diluted to refining consistency by addition of hot alkaline wash liquor. The diluted pulp suspension is then refined while hot and the refined pulp is washed. The hot alkaline wash liquor is recovered for use in the dilution step.

RESULTS

Mills using this process have reported a 15 to 20% increase in yield over normal operation, and substantial reduction in operating costs as a result of savings in wood. In addition to substantially increased profits, the new process marks a major step forward in wood conservation.

APPLICATIONS

The Sutherland High Yield Process is being used for the production of high yield linerboard and will, in the near future, be applied to other unbleached grades. Bleaching of high yield pulps is a possibility and does result in a marked increase in yield, although at the present cost of wood and chemicals, it does not offer the savings possible in unbleached grades. The use of this system for bleached pulps will follow a natural development course in the foreseeable future.



PATENT

U. S. Patent No. 2,591,106, dated April 1, 1952, has been issued covering this process. While this patent in no way limits the user of the process in his choice of equipment, it does limit the use of the process to licensees of the Sutherland Refiner Corporation. Licenses are available to qualified mills on application to Sutherland Refiner Corporation.



SUTHERLAND REFINER

TRENTON 8, NEW JERSEY







WASHING HIGH YIELD SYSTEM

MANUFACTURED BY—
VALLEY IRON WORKS CO., APPLETON, WISCONSIN



MIDDLE WEST NOTES

GEORGE W. MEAD, retired former president of Consolidated Water Power & Paper Co., is taking it easy at Miami, Florida, but when it gets warmer, he plans to return to the town he has done so much for over the years—Wisconsin Rapids.

EDDIE THOM, pulp sales manager for Howard Smith Paper Mills in Canada, returned again to attend the Kalamazoo Spring Ladies Night party and dance of the Superintendents.

RUSS McVICKER, vice president of Chillicothe Paper Co., recently celebrated his 65th birthday.

DICK RADSCH, vice president, sales, Appleton Machine Co., and his wife, Ione, were guests for two weeks in Florida of BOB WELLER, retired former pulp and paper industry representative for Link-Belt Co.

DAVE HOWARD, pulp representative in Kalamazoo for Howard Smith and Elof Hanson, and his wife have welcomed a new addition to their family as of Apr. 11.

LEONARD PEARCE, in Kalamazoo recently from the St. Regis Bucksport, Me., mill, soon to take over FRED GOOD-WILL's post as resident manager there, is a graduate of Bowdoin College. Mr. Goodwill is to manage the Bucksport mill.

EARL McCOURT and his wife—he of Consolidated at Wisconsin Rapids, returned from trip to California and Washington and saw their son and his family at Camas, Wash., where he is in development work at the Corwn Z mill.

ROBERT BERNARD, of Kimberly-Clark, Nennah, was honored by being chosen "Notre Dame Man of the Year" by the Fox River Valley Notre Dame Alumni Club, He graduated in 1937.

HAROLD INGRAHAM, of Chas. T. Main Inc. engineers, who came to Wisconsin Rapids to address an industry group, used to play football for Wausau, Wis., High School.

TALBOT PETERSON, of Valley Iron Works, was elected chairman of the county Republican voluntary committee by a big majority vote at recent party caucus in Appleton, Wis.

CHARLES H. REESE, vice president, Nekoosa-Edwards Paper Co., was invited to Holyoke, Mass., in May to address the Supts. Division there on papermaking.

JIM DE YOUNG, nephew of Dorothy and Margaret DeJonge of Thilmany and Bergstrom mills respectively, was encountered by Pulp & Paper on a St. Louis trip. He wanted to be remembered to his Wisconsin friends. He is selling for Container Corp. of America out of Wabash, Inc., married and already with a family addition.

ROBERT L. MILES was promoted to per-

sonnel development coordinator and KEN McLEOD has been appointed industrial engineer at The Gardner Board & Carton Co., Middletown, O. Mr. Miles, a Duke U. graduate, had been administrative assistant to RICHARD L. SIEGEL, director of industrial and public relations. Mr. McLeod, born in Montreal, a Canadian Air Force war veteran, was formerly with St. Regis and Johns Manville in industrial engineering.

JACK HARTUNG, purchasing agent of the St. Regis mill at Kalamazoo, conducted a business survey at a recent meeting of the Kalamazoo Valley Association of P. A.'s.

BILL MITCHELL announces that Central States Engineering Inc., which he heads, has moved from College to the Conway Hotel Bldg., 128 North Oneida St., in Appleton, Wis.

PACIFIC COAST NOTES

ROGER N. WIEWEL, of engineering department, Weyerhaeuser Pulp Division, Longview, is engaged to marry Miss Carroll L. Schuman, of Honolulu, as announced by her parents. She is grand-daughter of the founder of Schuman Carriage Co. Mr. Wiewel, graduate of Carnegie Institute where he was classmate and close associate of John V. Roslund, Jr. (son of equipment representative of Portland, Ore.), received master's degree last year at Harvard Business School. The wedding will be this summer.

E. E. (GENE) OLFSON has returned to Fibreboard Products Inc.'s Stockton, Calif., division as assistant resident manager, a position he held at Antioch Division, since 1950. Before that he was office manager at Stockton. He started in Fibreboard's Port Angeles mill.

RALPH P. McDONALD, until recently assistant resident manager at Fibreboard's Stockton, Calif., division has moved to Antioch with the same title, succeeding Mr. Olfson. Mr. McDonald, also is recently become a 25-year man, much of that time at Stockton.

PACIFIC COAST APPOINTMENTS

OLIVER F. KILHAM (left), who was appointed Personnel and Safety Supervisor of the Crown Zellerbach kraft mill division at Port Townsend, Wash., succeeding DON OSBORNE (right), who was transferred to C-Z's West Linn, Ore., book and news mill division as Training Director. Mr. Kilham, whose appointment was announced by Res. Mgr. Leo Ziel at Port Townsend, was a management "discovery." At the Joint Labor-Management Safety Conference held a year ago by Wash. State Mills, he was a union local delegate. His reports on the conference impressed management, leading to his present appointment.







ENGINEERS' PROMOTIONS
IN B & W AND PACIFIC MILLS

PAUL R. LOUGHLIN (left), named Executive Assistant and transferred to staff of Boiler Division of Babcock & Wilcox Co He was Chief of Staff of company engineering since 1947.
W. T. POUND (right), appointed Assistant Res. Manager of Pacific Mills Ltd., Ocean Falls, B. C., con-

W. T. POUND (right), appointed Assistant Res. Manager of Pacific Mills Ltd., Ocean Falls, B. C., continuing in charge of engineering, maintenance and construction. He had been Plant Engineer, graduated from Queen University, Ontario.

LYLE J. GROSS, recently of Institute of Paper Chemistry where he took his master's degree and other graduate training, has joined experimental pulping section of Crown Zellerbach Corp. Central Research Department, Camas, Wash.

DR. WALTER F. HOLZER, promoted early this year to assistant to vice president in charge of manufacturing, Crown Z Corp., transferred from Camas, Wash., to CZ's San Francisco executive offices in April. His family will move to the Bay area at conclusion of school term.

J. D. ZELLERBACH, president of CZ Corp., was presented with certificate of honorary citizenship to city of Camas, Wash. The award, in recognition and appreciation of the important part he and his organization had in development of the city, was presented at the 70th anniversary celebration of Camas and the paper mill, which held open house.

W. L. McCORMICK, Weyerhaeuser vice president since 1929 and former secretary of the company, died recently. He was born in Waseca, Minn., June 12, 1876.

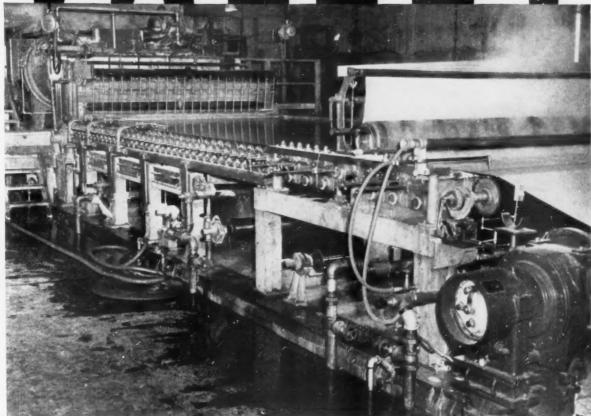
HUGH D. KENNEDY, for 25 years supervisor of mill purchases for Crown Z at Camas, Wash., retired May 1 with plans to "catch up on fishing." WILLIAM C. PARKINSON, purchasing assistant at CZ Central Engineering, Seattle, became the new supervisor of purchasing at Camas; DON LAW, assistant purchasing supervisor of CZ Seattle district office, has been named assistant purchasing supervisor of Central Engineering and JOHN GRILL, purchasing assistant at Camas, transferred to Seattle as district assistant purchasing supervisor.

Schultz & Co. Manager

C. D. Schultz, president of C. D. Schultz & Co., Inc., foresters and engineers with Seattle and Vancouver, B. C., offices, announced appointment of W. H. (Bill) Price as manager and chief forester. A 1926 graduate of the University of Washington, he has been with the U.S. Forest Service and was Weyerhaeuser's first forester and later its managing forester.

On Hopper Paper Company's New Machine
. . . It's Inlet and Headbox by

VALLEY



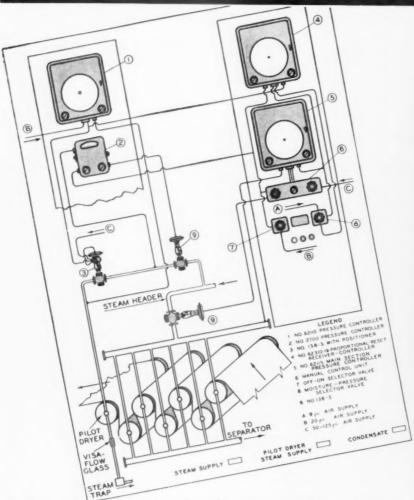
For producing Hopper's distinguished offset and specialty papers, it's a VALLEY Inlet on every machine.

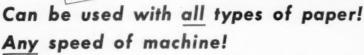
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Maintains average moisture content across the sheet. Does not rely on 'spot' measurements.

Controls moisture percentage at one or several points along machine. Can be used for any machine speed — any machine width.

Is suitable for any grade or weight of paper.

Is flexible — system may be applied to one or more sections.

Provides pneumatic individual break control for each control location.

Continuously records operating steam pressures, moisture deviation, time and duration of breaks.

Complete information will be furnished on request.

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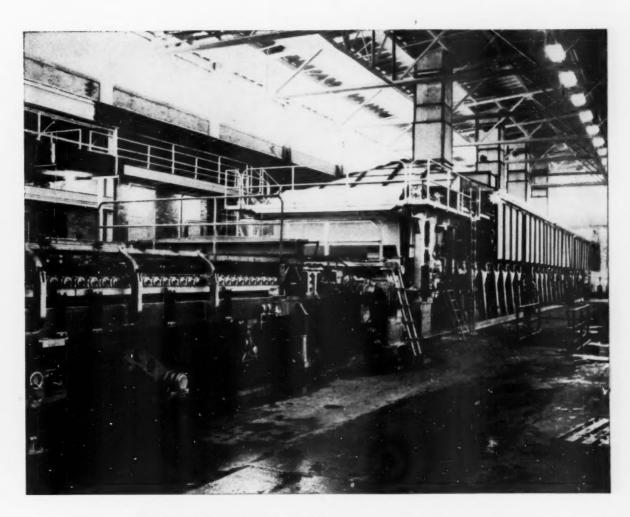


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- Reel



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This 130" fourdrinier machine supplies the life blood of American business: bond paper! Without the product it produces, businesses all over America might grind to a slow halt.

Imagine, if you can, a business operated without paper. No paper to write orders on . . . no paper to keep records on . . . no paper to send out bills . . . no paper for correspondence. Without much doubt, it would be pretty tough for any business to operate long without paper.

And it would be equally difficult for this fourdrinier to operate without chemicals. Because Spencer Chemical Company supplies an ever-increasing amount of commercial grade anhydrous ammonia to paper mills using the revolutionary ammonium bisulfite process, each new development in this field is studied carefully.

With the completion in 1953 of new works now under construction, Spencer Chemical Company will be in a position to supply ammonia to a number of additional mills planning to go over to the ammonium bisulfite process. If your mill has such plans, perhaps it would be mutually beneficial to talk it over with us.



America's Growing Name In Chemicals

Spencer Chemical Company, Executive and General Sales Offices, Kansas City, Mo. Plants located at Pittsburg, Kans.; Henderson, Ky.; Charlestown, Ind.; Chicago, Ill.; and Vicksburg, Miss. (under construction).



SOUTHERN NOTES

THOMAS D. JOHNSON has been appointed Atlanta, Ga., sales application engineer at Atlanta, Ga., for Reliance Electric & Engineering Co., Cleveland, according to E. G. ORAHOOD, Southeastern district manager. The Atlanta office is in 427 Candler Bldg. Mr. Johnson was born in the South—Newberry, S.C., and graduated in 1948 from Clemson.

E. W. NAIL, L. M. PRESTON, C. E. WARD and H. WITTKAMP were promoted to paper mill shift foremen at Union Bag & Paper Corp., Savannah, Ga.

NORTHEAST NOTES

DANIEL F. SMITH has taken over the position of sales manager of Central Paper Co., Div. of S. D. Warren Co. His headquarters will be Muskegon, Mich. Mr. Smith formerly represented Union Bag & Paper Corp. in Pennsylvania and the Central States, and later was director of waterproof sales.

ANDREW M. McBURNEY, formerly general manager of sales for Oxford Paper Co. and Oxford Miami Paper Co., has been named vice president in charge of sales for both companies, and WADLEIGH B. DRUMMOND, chief counsel, has been elected to the board of directors.

SAMUEL P. FELIX took over duties May 1 as general manager of the De Laval Turbine Pacific Co., according to J. P. STEWART, president of De Laval Steam Turbine Co., Trenton, N.J., parent company. From New Jersey Mr. Felix has moved to the subsidiary offices in San Francisco, Calif., where he will direct activities for the company on the Pacific Coast.

KENNETH D. LOZIER is a director and B. W. RECKNAGEL is assistant secretary of St. Regis Paper Co., following an April directors meeting.

THEODORE HAWLEY has been named Baltimore representative for the Southern Kraft Paper and Bag Div., of International Paper Co., it has been announced by GEORGE STUHR, div. sales mgr.

ABRAHAM MAZER at the age of 77, founder and chairman of the board of Hudson Pulp and Paper Corp., passed away on March 27 at his home in New York City after a prolonged illness. At the age of 17 Mr. Mazer came to this country from his native Ukraine as a paper bag jobber. He began building a business which today is a national organization that employs over 3,000 people, with headquarters in New York and mills in Palatka, Fla., Lansdowne, Pa., Bellows Falls, Vt., and Augusta, Me. Jack Mazer is president of Hudson Pulp & Paper Corp.

E. LANGFORD JONES has been named sales manager of the Virginia Cellulose Dept. of Hercules Powder Co. Mr. Jones

THE NEW LOOK IN OFFICES—RAYONIER INC., NEW YORK CITY



SOMETIMES IT TAKES AS MUCH to make a good office as good pulp, and a lot of planning went into offices of RAYONIER INC., recently occupied in New Chrysler Bldg., New York. Planning was by Cordes, Barton and Minnos, New York architects. RECEPTION AREA (above left) exemplifies simplicity of decor; unornamented wood panelling; "off-floor" furniture; ease of traffic flow. Reception desk is in immediate foreground. Entrance to offices in rear. Photo murals of Rayonier operations on left wall. Above right is office of CLYDE B. MORGAN, President. Spaciousness is achieved by simple lines and illusion of "openness" is further induced by use of table instead of desk.

ONE WAY TO PUT DIRECTORS TO WORK without sacrificing prestige is shown by board room at right. It is intended as a multi-purpose room with such functional use of space that it represents economy rather than luxurious liability. Simple decor creates feeling of space. Room is only 25 x 16 feet.

will be in charge of sales of chemical cotton. He joined Hercules in 1939 immediately after graduating from William and Mary College. For the past year he has been sales supervisor.

CANADIAN NOTES

WILLIAM CLARK, until recently a sales executive with Montreal head office of Canadian Ingersoll-Rand Co., has been appointed manager of the Vancouver, B.C., office of that organization.

I. H. POTTIE has been made control superintendent of Mersey Paper Co. at Liverpool, Nova Scotia. G. W. ROBINSON has been appointed mill chemist for the same company.

BERT JOSS, assistant to DOUGLAS JONES, executive secretary, Technical Section, Canadian Pulp & Paper Association, Montreal, made his first official visit to the west coast in March, touring several mills and attending the Harrison Hot Springs meeting of the Western branch.

V.T.V. (VIC) WILLIAMS, formerly of St. John's Sulfite Co., has been appointed chief engineer for Columbia Cellulose Co. at Prince Rupert, B.C. Newly appointed to the research department of this mill is Dr. MORRIS WAYMAN, who was formerly at the Hawkesbury, Ont., mill of Canadian International Paper Co.

AMERICAN CYANAMID CO., Calco Chem. Div., Bound Brook, N.J., has announced that effective July 1, 1953, DON-ALD L. GRISWOLD will be transferred to the head office at Bound Brook as assistant to the manager of the Dyestuff Dept. Since 1947, Mr. Griswold has been manager of the Calco Chem. Div., North American Cyanamid Ltd., with headquarters first in St. Lambert and, since Sept. 1952, at Cyanamid's new consolidated of-



fice and manufacturing building in the Town of Mount Royal.

Pilz Dies in Everett

William J. Pilz, who left high school to go to work for Everett Pulp & Paper Co. and rose to become its president, died Apr. 3 in Everett at the age of 65. He moved to Everett from New York in 1889. He retired as president when the company was sold last year to Simpson Logging Co.

Pins for C-Z Men

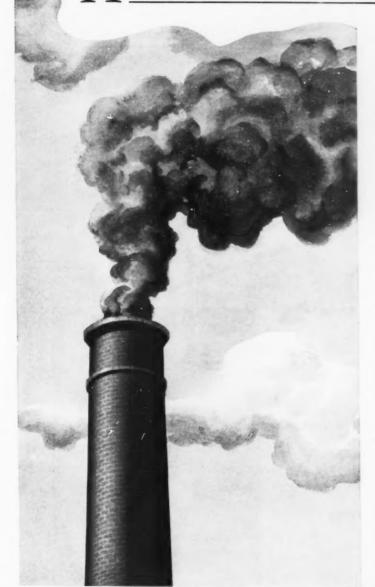
Central Research Department of Crown Zellerbach Corp. held a pin dinner May 1 at Camas, Wash. Reed Hunt, of manufacturing, and A. B. Layton, vice presidents, participated. Top award went to Elmer Clark, of maintenance department, for 30 years service. Twenty-year pins were awarded to J. H. Hull, chief of process development section, and Walter F. Holzer, assistant to vice president in charge of manufacturing.

PRINCIPALS AT ANNUAL PIN DINNER of Los Angeles division, Crown Zellerbach Corp., held at Mayfair Hotel, Los Angeles, March 21. Thirty-two received pins for service from five to 35 years. Left to right: R. O. Hunt, Vice-President in charge of Mfg., who made presentations; Lester E. Remmers, Resident Manager, and J. Y. Baruh, Vice President.





ALMOST every cloud has a silver lining



IN CASES where Koppers-Elex Electrostatic Precipitators can be used profitably, plants have at their disposal the most effective and efficient means known for preventing actual dollars-and-cents profits from 'going up in smoke.' It does this in any one of three ways:

FIRST—recovery of valuable materials entrained in process gases.

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EQUIPMENT SALES REPS. IN MIDWEST AND EAST

EQUIPMENT SALES representatives and managers whose new appointments and agencies were re-cently announced (1 to r): DAN B. CHAPMAN, of 1704 North Superior, Apple-

ton, Wis., has been appointed exclusive agent in North Central states for Fulton Roll Press manufactured by Fulton Iron Works, St. Louis, Mo., used for bark press and other purposes. He also represents Morden Machines and the Evans Rotabelt Suction Unit. Mr. Chapman graduated from Univ. of

California in engineering.
CHARLES E. RIEDHAUSER, named Midwest territory

CHARLES E. RIEDHAUSER, named Midwest territory representative for H. Waterbury & Sons. He was formerly with Morey Paper Mill Supply Co.

ALEXANDER JENKINS JR., appointed Eastern Sales Mgr. for Bird Machine Co., South Walpole, Mass. With Bird for six years, he was former Purchasing Agent for Hollingsworth & Whitney Co., graduated from Northeastern U.

GLENN H. COLLINS, of Wilcox Engineering Co.,

of Warren Steam Pump Co. in that area. Mr. Collins will cover western and southern Ohio and most of

WILLIAM J. INWOOD, 1511 Security National Tower, Battle Creek, Mich., named sales representa-tive for Michigan by Warren Steam Pump. He also will have an office in Room 218, Lexington Bidg., Detroit 2, Mich.

A Paper Use Grows

The Fibre Fabric Industry is a group of manufacturers of a paper product used principally for automobile seat covers. Since 1951 their market has increased more than 21/2 times.

FARLEY TO D.C., CARD TO S.F.

COL. JOHN L. FARLEY (left), former Executive Assistant for Crown Zellerbach Corp., with offices in Seattle, has been appointed Director of the U.S. Fish and Wildlife Service, and has moved to Washington, D.C. He was former Exec. Director of Cali-fornia Fish and Game Commission and during World War II held an important command in Alaska in military service. He has been recently engaged in community and employe relations activities of C-Z in Northern mills. Interior Secretary McKay made the

CHARLES CARD (right), has been appointed Industrial Sales Dept. Mgr. in San Francisco for Scott Paper Co., as part of its western expansion. He has been Resident Manager at the Anacortes, Wash., where he was succeeded by Irwin Thieme. Mr. went west a few years ago after heading Scott's Quality Control Division in Chester, Pa., and before that he had been Mgr. of several Districts.





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Swenson multiple effect L.T.V. evaporator for black liquor in a pulp mill.

Heat Transfer and Crystalization" offers 52 pages of authoritative data on modern evaporation and crystallization methods. Ask for your copy today!



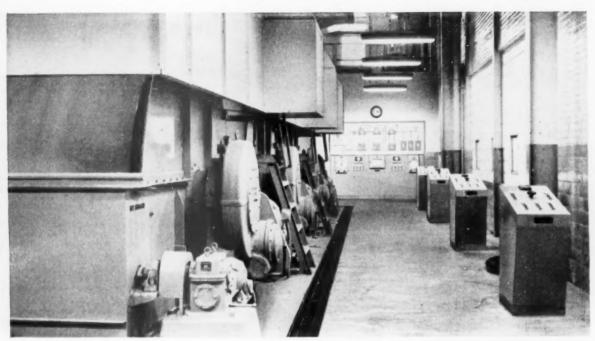


ANT to transmit power at high speeds ... with better than 98% efficiency for the life of the drive? With Link-Belt Silverstreak Silent Chain you get lower initial cost on many applications . . . lower operating costs in all cases. In addition, ability to operate at higher speeds means less investment in motors and controls. Efficient operation on extremely short centers saves space, too. Remember, you can get positive, no-slip Link-Belt Silent Chain Drives from fractional to thousands of hp, with drives from 1/2 to 50 hp available from stock. Ratios range from 1:1 to 7:1. Contact your nearby Link-Belt office or distributor today.



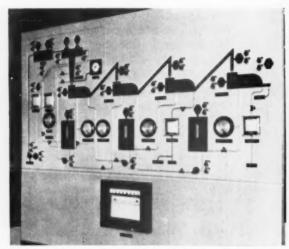
SILVERSTREAK SILENT CHAIN DRIVES

LINK-BELT COMPANY: Plants: Chicago, Indianapolis, Philadelphia, Colmar, Pa., Atlanta, Houston, Minneapolis, San Francisco, Los Angeles, Seattle, Toronto, Springs (South Africa), Sydney (Australia). Sales Offices, Factory Branch Stores and Distributors in Principal Cities.

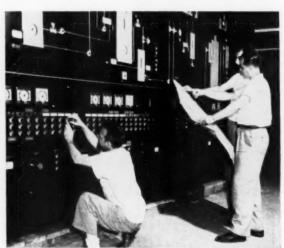


SEMI-GRAPHIC PANEL for a battery of Swenson washers was built by Honeywell for a Wisconsin mill. Individual consoles permit on-the-spot control of each washer. Main panel combines graphic control with supplementary conventional instrumentation.

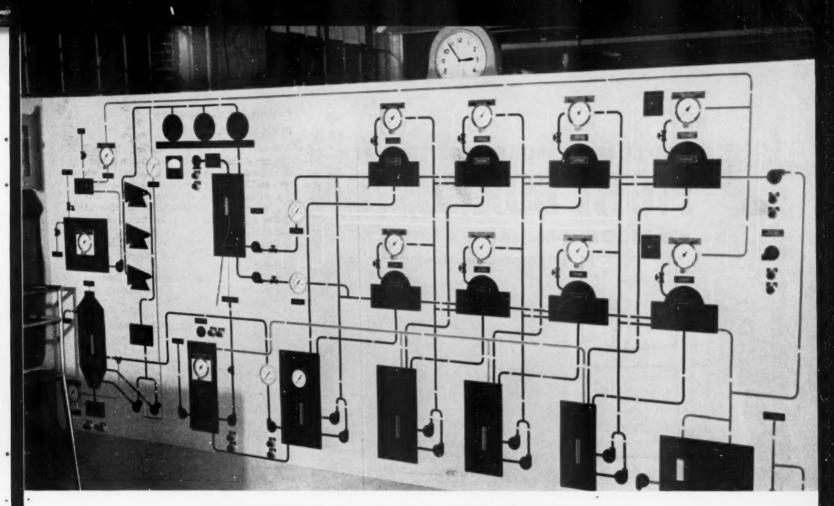
Honeywell custom-built simplifies



COMPACT DESIGN is illustrated by this Honeywell panel for a Sutherland pressure washing system, installed in a mill in Idaho.



EXPERT WORKMANSHIP is the hallmark of Honeywell panels, Here a group of technicians put the finishing touches on the first of four graphic panels for a bleach plant.



FULL GRAPHIC CONTROL for two lines of washers is centralized on this Honeywell panel at a big southern mill. Note how the space-saving Tel-O-Set instruments fit readily into the process diagram.

graphic control operation of stock washers

Through the use of Honeywell graphic control, modern paper mills are effecting substantial savings in stock washer operation. The simplified, functional display of process operation that these panels provide materially shortens operator training time. Start-up goes faster, because it's so easy to follow every change in process variables in logical sequence. Installation time is reduced, too; the Honeywell panels arrive at the site completely wired, piped and tested . . . ready to connect to plant equipment.

Graphic instrumentation by Honeywell offers several specific benefits:

Custom-engineered design by Honeywell specialists, who developed the paper industry's first graphic panels . . . and who have built more than half the graphic and semi-graphic boards now installed. Complete instrumentation—including Tel-O-Set miniature indicators, recorders and controllers for full graphic panels, and a broad line of Electronik and other instruments for semi-graphic and conventional boards...plus a full selection of primary elements, control valves and accessories.

Skilled Assembly in Honeywell's panel department. Panels assembly includes complete back-of-panel wiring and piping of all instruments, controls and accessories . . . plus thorough testing of the finished panel.

Your local Honeywell sales engineer will welcome the opportunity to discuss graphic control for your mill. Call him today . . . he is as near as your phone.

Minneapolis-Honeywell Regulator Co., Industrial Division, 4438 Wayne Ave., Philadelphia 44, Pa.

• REFERENCE DATA: Write for new Bulletin 2802, "Instrumentation for the Paper Industry."



Honeywell

First in Controls

FIGHT CORROSION

with ESCO Heat-Treated High Alloy Steel Castings



BEFORE

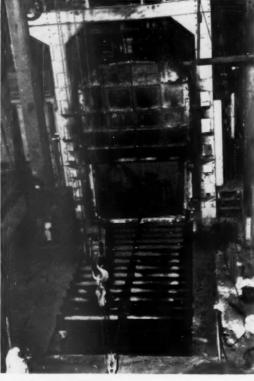


AFTER

These photomicrographs illustrate importance of proper heat treatment in "locking" carbides in solution to produce extra high corrosion resistance.



Laboratory accelerated corresion test checks result of hea



ESCO ALLOY CASTINGS OUTLAST OTHERS MANY TIMES!



A big reason for the unusually bigb corrosion resistance of ESCO Alloy steel castings is the advanced technique of heat-treating and water quench developed at ESCO. It takes only 30 seconds for a load of steel castings to pass from the oven into an 8000-cubic-foot water quenching tank! Capacity, and speed of quench illustrates a typical ESCO answer to a tough production problem. For only with such facilities can you be assured the uniformly high corrosion resistance of ESCO Stainless steels.

ESCO has solved many tough heat and corrosion problems for industry as part of its application engineering and foundry service! ESCO maintains one of the largest foundry metallurgical laboratories in the country to help you with really tough corrosion problems. Your inquiry is invited. Write for full details or ask for informative Brochure 175.



Offices and Warehouses: Honolulu, Hawaii; Houston, Texas; New York, New York; Los Angeles, San Francisco, California; Seattle, Spokane, Washington; Centralia, Pennsylvania; Eugene, Medford, Oregon; Salt Lake City, Utah. In Canada: Vancouver, B. C., and Toronto, Ontario.

ELECTRIC STEEL FOUNDRY CO.

2166 N.W. 25TH AVE., PORTLAND 10, ORE.

712 PORTER ST., DANVILLE, ILL.

Expansion At Bastrop Mills of I. P. Co.

Expenditure of \$500,000 on its old "Bastrop" mill is being undertaken by International Paper Co., a result of which will be 70-ton per day increased capacity. An equal or larger sum will be expended on the "Louisiana" mill also at Bastrop, La. Completion is scheduled for early 1954.

The "Louisiana" mill received its fourth paper machine during the post-war general expansion.

President J. H. Hinman was in Bastrop in May with Howard D. Hinman, manager of the Georgetown mill; R. H. Hinman, from the New York office; Erling Riis, vice president and general manager of Southern Kraft Division, and other Mobile executives.

New Plant for Coos Bay

The Empire, Ore., sulfite mill of Coos Bay Pulp Corp., wholly owned subsidiary of Scott Paper Co., will undergo a \$1 million expansion program, according to Earl F. Anderton, plant manager. This project will include a hydraulic cordwood barker, chipper and chip storage, and storage for unbarked wood. Pulpwood is to be purchased from small woodlot owners and salvage wood from logging operations. Engineering is being done by Stevenson & Rubens of Seattle.

Proposed Alberta Mill

Alberta's proposed pulp mill, to be built at Yates, may cost closer to \$20,000,000 than \$6,000,000, the previously reported figure, according to word from Edmonton, where Richard Randall, president of International Resources Ltd., is expected to make a detailed announcement. Herman Simpson of Seattle has been co-operating with Mr. Randall. The company is said to have a contract with Alberta covering timber.

Second Machine at Everett May Be Added Soon

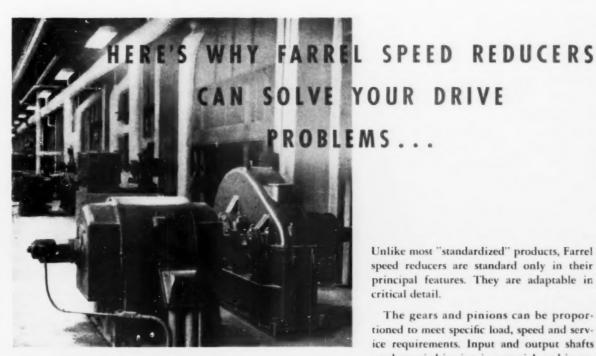
With ground just broken for a big new high speed Beloit tissue machine and paper mill building by Scott Paper Co. at Everett, Wash., adjoining its Soundview Pulp Division, Thomas B. McCabe, president, told shareholders "based on present rate of sales, it looks to me as though we may be putting in a second paper machine on the West Coast (at Everett) sooner than we anticipated."

Centri-Cleaner at Puget

A Bauer Bros. Centri-Cleaner for pulp cleaning has been installed in Puget Sound Pulp & Timber Co., Bellingham, Wash.

Richmond, Calif., Mill

Certain-Teed Products board mill at Richmond, Calif., has installed two Black-Clawson spiral bevel gear drives in first and second presses.



There are 35 Farrel speed reducers in this mill.



This is one of 80 Farrel units installed in a southern mill.

Unlike most "standardized" products, Farrel speed reducers are standard only in their principal features. They are adaptable in critical detail.

The gears and pinions can be proportioned to meet specific load, speed and service requirements. Input and output shafts can be varied in size, in material, and in extension. Even some housing dimensions can be modified to meet problems in mounting.

This design flexibility has resulted in the solution of innumerable application problems. There is no need to compromise. You can ask for-and get-a unit that will meet your exact needs.

Mills throughout the country have "discovered" this unique feature of Farrel speed reducers. That is why so many of these units can be found, today, transmitting power to suction presses, smoothing presses, dryers, couches, calenders, reels and other equipment in modern mills.

Write for further details of these problemsolving units. Ask for a copy of Bulletin 449.

FARREL-BIRMINGHAM COMPANY, INC. ANSONIA, CONNECTICUT

Plants: Ansonia and Derby, Conn., Buffalo, N. Y Sales Offices: Ansonia, Buffalo, New York, Boston, Akron, Detroit, Chicago, Memphis, Minneapolis, Portland (Oregon), Los Angeles, Salt Lake City, Tulsa, Hauston, New Orleans

Farrel-Birmingham

FB-833

June 1953

Elects Seidl Chairman

Lake States Tappi at their Appleton Spring party May 19 announced election of Robert J. Seidl of the Forest Products Laboratory, Madison, Wis., as chairman, L. A. Moss of Whiting-Plover as vice chairman, S. R. (Jim) Parsons of Consolidated as secretary, and John Bard of Marathon as treasurer.

Southeastern Tappi

The Southeastern Section of Tappi held its first annual meeting at the General Oglethorpe hotel, Savannah, Ga., May 8. A tour of the plant of Union Bag & Paper Corp. followed the technical sessions. Papers were on cooking charts by John Morris, Union Bag; black liquor solids by Peter B. Borlew and S. Jerome Lancaster, Container Corp. of America; refining of semichemical pulp by Thaxter W. Small, Sprout, Waldron & Co., Inc.; and pulpwood resources by Dr. E. L. Dermon, Southeast Forest Experimental Station.

CLEAVER-BROOKS GETS SWISS DESIGNS



ONE OF WORLD'S LARGEST vapor compression evaporators. Mas 250,000 pph. capacity. May be used as triple effect steam evaporator. Cleaver-Brooks Co. at Milwaukee is adding plant to carry on its developments in this field with also use of Escher-Wyss designs.

Sales and manufacturing rights for North America involving use of Swiss designs has been granted to Cleaver-Brooks Co. of Milwaukee, Wis., by Escher Wyss Co. of Zurich, Switzerland.

For expansion of production, Cleaver-Brooks is speeding up construction of an additional 50,000 sq. ft. of factory space and extensive tooling at its Milwaukee plant, scheduled to start in use in late 1953.

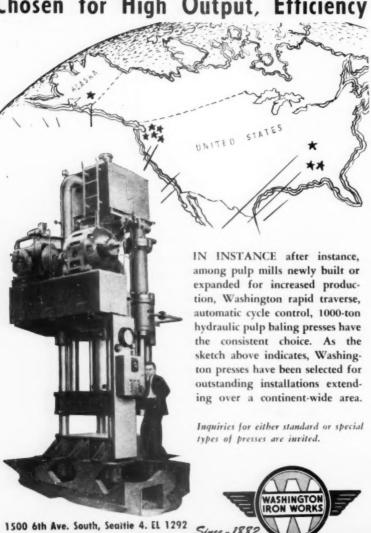
Escher Wyss, founded in 1805, is among the world's oldest and largest designers and manufacturers of turbines, pumps, compressor, heat exchange apparatus and evaporators. Its work in sulfite liquor evaporation has been notable. Cleaver-Brooks has conducted research in the sulfite pulp mill waste liquor evaporating techniques and this was a contributing factor to the granting of North American rights to this company by the Swiss firm.

A SKIRLING ON THE BRAE OF CAMAS

HOOT MON! HUGH KENNEDY (center) got this treatment when he retired May 1 as Purchasing Agent, Crown Zellerbach Corp., Camas, Wash. The Foremen's Club feted him in Scottish tradition, with CHET MCNEIL (left), of CZ affiliate Western Transportation Co., playing the bagpieps, and FRED MILLIGAN, Industrial Engineering Dept., on the drums.



WASHINGTON Pulp Baling Presses Chosen for High Output, Efficiency



WASHINGTON

DOES IT AGAIN SAVEALL

WATER RESOURCES COMMISSION STATE OF MICHIGAN



ALBORY S. MELIOTYS, M.D. CHA-COMMISSIONER OF INSALTH ENN P. MANE CAMBURS.

March 17, 1953

ir. John Plantefaber, President Rocky River Paper Company Three Rivers, Michigan

Dear ir. Plantefaber:

Enclosed is a report of a waste survey made at your mill by our staff engineers on January 13 and 14, 1953.

The results of this survey show an excellent reduction in all waste constituents below that found in any previous survey. Of particular importance is the current fiber loss which was measured at forty-one pounds per day equivelent to 0.054% of production. This is well below the 1% limit that you are required to meet by order of this commission. With the reuse of recovered pulp from the save-all unit well established, we can report that your mill is in compliance with the order.

The record as determined by this survey is such that The record as determined by this survey is such that your mill now ranks near the top among the paper mills of the state, in waste control performance. We wish to commonly the paper mills of the state, in which accomplishment and to solicit your mend you on this accomplishment, and to solicit your continued interest and cooperation in maintaining this

Very truly yours,

Loring F. Oeming Chief Engineer

WATER RESOURCES COLMISSION

DISCOVER

how BULKLEY, DUNTON equipment can help you!

> We are prepared to design and supply white water equipment systems for all your needs. Mail coupon for full details!

BULKLEY-DUNTON PROCESSES, INC.



Dept. C-1, 295 Madison Ave., New York 17, N.Y. Pacific Coast: Dept. C-1, Security Bldg., Pasadena, Calif.

BULKLEY-DUNTON PROCESSES, INC.

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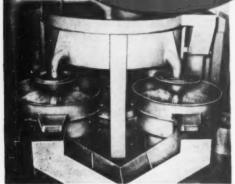
Please send full information about BULKLEY-DUNION'S

COMPANY

CITY

Northwest Wood Products Company now uses





An initial installation of a one 48-inch A-1D8 model SWECO Separator for the removal of bark and fines from hydraulic barker water effluent was made less than one year ago by one of the world's largest wood products producers. The unit solved the problem so successfully that 27 identical SWECO Separators have been installed in the company's numerous mills throughout the Northwest. Whether your problem is one of discharging clean water from the barker or to clean the water for reuse-SWECO Separators have been proven successful in this application using screens as fine as 200 mesh. Both standard and custom-engineered models available.

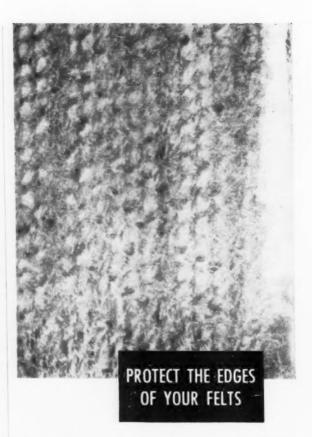
*Name on request.

Write for fully illustrated catalog teday.





SEPARATOR DIVISION
SOUTHWESTERN ENGINEERING COMPANY
4800 Santa Fe Ave., Los Angeles 58, Calif.



Take a look—a close look—at the picture. It is a greatly magnified section of the damp edge of a felt.

Note the deterioration of the woolen threads—practically destroyed by the bacteria in the water.

Because the edges beyond the roll faces have less opportunity to shed water than the center of the felt which goes thru the roll nips, an ideal bacterial breeding ground is created.

The corrective! Orr An-bac felts—the type of felt that contains bacteria destroying chemicals.

The use of Orr An-bac felts has been extending the felt life-span and making friends for years. They could do as much for you.

Give Orr-An-Bac felts that opportunity.

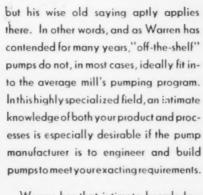


THE ORR FELT & BLANKET CO.

"You cannot put the same shoe on every foot"



Shakespeare probably wasn't thinking of PUMPS or their applications in Pulp and Paper Mills,



Warren has that intimate knowledge, backed by experience in serving hundreds of the Nation's leading mills, many over a long period of years.

Let us match our experience against your pumping requirements!



Main and auxiliary fon pumps, both Warren



Three Warren Steam Pump Co. pumps handling white water from board machine.



Warren pump type 12-DL-18 pumping black liquor at 2700 gpm against 55 ft. head off No. 2 washer foot box.

Warren Vertical Pump handling stock from dry broke beater to filler chest,

WARREN PUMPS

WARREN OUIMBY PUMPS

WARREN STEAM PUMP COMPANY, INC., WARREN, MASSACHUSETTS

June 1953

95

WORLD NEWSPRINT RECORD CLAIMED OF 1,156 TON-DAY

POWELL RIVER'S ADDITIONS

THE \$15,000,000 INVESTMENT in modernization at Powell River Co.'s big newsprint mill at Powell River, B.C., is already paying off in bigger production. The mill recently claimed a new record for individual newsprint plant production—1,156.9 tons in a single day.

The company's three-year construction program, representing a continuation of the expansion initiated in 1945, will be completed this spring. A part of the current program involved speeding up Nos. 3, 4, 5, and 6 paper machines and this is now virtually finished.

During the past year the following projects have been carried out or are now being completed:

1. Thirteen-mile transmission line from Stillwater to serve the new electrical distribution system being completed this year at a cost of \$1,500,000;

2. Installation of new Brown Boveri (Switzerland) steam turbine with power potential of 12,500 KW and new B & W boiler with self-contained superheater, to be completed this spring at a cost of \$2,750,000.

3. Off-loading, storage and conveying facilities for hog fuel, cost \$800,000;

Construction of new deepsea dock, \$2,200,000;

5. Construction of new barker plant with Hansel ring-type hydraulic unit, log haul, etc., \$1,300,000;



 Installation of two new Waterous magazine grinders, largest in the world, costing \$1,240,000;

7. New chip silos.

Cost of modernizing and speeding up four of the newsprint machines was \$3,860,000.

A NEW AIR VIEW OF POWELL RIVER CO., Powell River, B.C. New deepsea wharf is in foreground. Modernization costing \$15,000,000 is being completed this year. Note lake in background, also homes.

current-limiting reactors into the ring, and installing current-limiting fusegear.

As a check of the design, especially of the effect that the introduction of currentlimiting reactors would have on transient stability, the system was set up in detail on the General Electric A.C. network analyzer in Schenectady, N.Y.

A new, double-circuit 6600 volt, steel tower transmission line was erected to replace the original single-circuit line between the power plant at Stillwater and the mill at Powell River. Although the area has few lightning storms, two overhead ground wires were used.

This particular transmission line is a vital cne to mill operations and it was felt that the additional expense of overhead ground wires was justified. Increased reliability, flexibility and worthwhile power savings were the three principal benefits to be gained by the new double-circuit construction. One of the interesting features of the new line, which was built alongside the old, is the re-stringing of the old conductors as the second circuit on the steel towers. The 6600 volt ring is carried on steel towers for nearly a mile around the mill. By designing the towers for medium loading and not allowing for the effect of broken conductors, an economical design was secured.

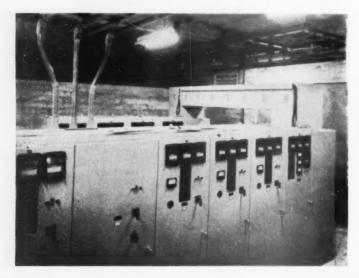
The over-all program was discussed by E. N. Walton, electrical engineer for the Powell River Co., in a paper prepared for presentation to the American Institute of Electrical Engineers and Canadian Pulp & Paper Association.

The problem of how to ground the 6600

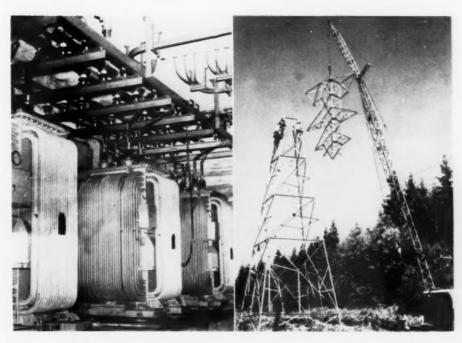
REORGANIZATION OF ELECTRICAL SYSTEM

Reorganization of the electrical system of Powell River Co.'s newsprint and sultite pulp mills in British Columbia, involving installations unique on this continent, is being carried out.

The aim has been to establish a new electrical distribution system to rectify former inadequacies. Among the projects involved have been the building of a new double circuit transmission line between Stillwater, B.C., source of Powell River's power, and the mills; expansion of the existing 6600 volt bus of one of the substations into a primary 6600 volt 13,000 KVA ring encircling the mill; tapping four new primary substations into the ring at heavy load and generation centers, running tie-lines to substations, inserting



Metal clad switchgear at one of the substations at Powell River. Most of the equipment was supplied by General Electric.



(Left) Ten thousand KVA transformer bank installed by Cemco Electric Co., Vancouver, B.C., and General Electric. (Right) Typical suspension tower assembly for the transmission line between Stillwater and Powell River Co.'s newsprint and suffice pulp mill in British Columbia. Building a new double circuit transmission line was part of the extensi.e reorganization of electrical facilities carried out this year.

volt ring, states Mr. Walton, was resolved in favor of solidly grounding at one or more points and of relying on sensitive high speed relay and circuit breaker operation for protection. In modernizing the 550 volt system, two objectives were sought: 1) Complete segregation of circuits into departmental groups; 2) Short circuit protection of the main 550 volt circuits. To provide the latter, high-rupturing capacity, current-limiting fusegear was chosen. Although this type of equipment has been used for many years in England and on the continent of Europe, and is highly regarded there, it is believed that this is the first installation of its kind in North America. Mr. Walton says that reliable operation and low main-

tenance costs are anticipated, since there are no moving parts and the fuses have been precisely manufactured.

"One of the interesting but, of course, not unexpected findings from the analyzer studies," writes Mr. Walton, "was that separate excitation and regulation on the four Powell River hydro units would yield superior operating conditions. This aspect of the system was particularly studied because under the original setup a 75 kilowatt direct-connected exciter on the 12,500 KVA unit provided common excitation for all four generators and was regulated by a very old Tirrill regulator.

"The direct-connected exciters on the three small units were used for other purposes such as electric locomotive battery charging. In the new setup each generator is provided with a regulator acting on its own exciter with of course the large exciter on the 12,500 KVA unit being modified to suit its lower output requirements.

"The studies further indicated that synchronous condensers of static capacitators would not only elevate bus voltage, but would also allow greater kilowatt loading of the hydro units. In other words, during periods of high lake levels, it may be possible to load the hydro generators' with more kilowatts to use in existing electric boilers, and thus reduce the spilling of water. On the other hand, during periods of low lake levels, the supply of such magnetizing power would allow the small hydro units to be shut down altogether and thus conserve water."

PROFITABLE UTILIZATION OF FOREST PRODUCTS IS THE KEY TO A SUSTAINED GROWTH.

MAGNUS

for High Sustained Yield of CLEANER PULP



MAGNUS METAL CORPORATION

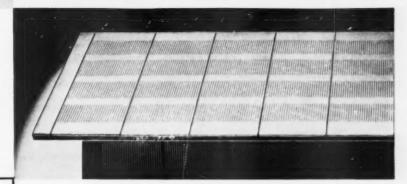
Fitchburg, Massachusetts
Subsidiary of National Lead Company

Metalworkers for the Paper Trade

SCREEN PLATES: BRONZE, CHROME NICKEL-STEEL, AND INCONEL

VALVES: GATE, SWING CHECK, BLOW, GLOBE, ANGLE AND "Y"

THIN-SHEET SCREEN PLATES



Magnus screen plates, made of chrome-nickel-steel or inconel, have a high-strength, thin sheet design that's specially engineered for maximum flow. About 40,000 of these plates are now in service, with performance records that prove these three important advantages:

1. Increased Capacity

The thin sheet eliminates relief milling, and with recommended arrangement, substantially increases capacity per plate.

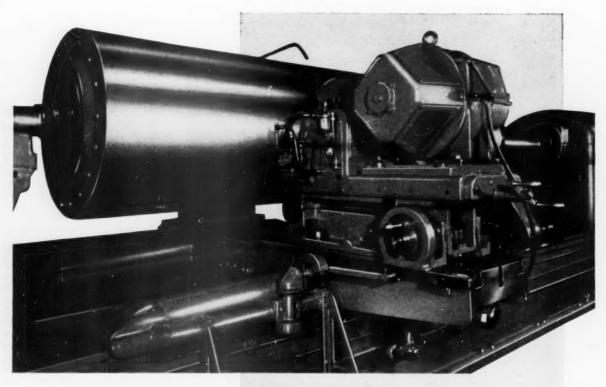
2. Longer Life

Slots remain sharp, side walls highly polished for the life of the plate. There's greatly improved corrosion resistance, too.

3. High, Sustained Yield

Thin-sheet screen plates assure consistent, uniform quantities of cleaner pulp. This means improved production at reduced operating costs.

Complete information is yours on request. Or if you like, we'll gladly have an engineer call.



"THIS BABY'S GOT EVERYTHING"

ROLL GRI

- Extremely accurate, yet rugged, with ease and flexibility of operation.
- The huge rolls of today's machines are within the medium range, rather than close
- to the top limit of this big Grinder's capacity.

 Accuracies of .0005" on the diameter of a press roll with rubber cover hard enough to measure accurately are usual.
- Accuracies of .00025" and closer are obtained on straight or crowned rolls of chilled iron.
- Two sizes . . . with capacities of 48" and 60" diameter and with bed length to suit
- the length of roll face.

 Designed for Direct Current operation but, for connection to an A. C. power supply.

 Other LOBDELL Grinders, Type GHV for A. C. operation, are made in three smaller sizes to suit the requirements of any mill.

Our helpful Paper Mill Roll Grinders Catalog is yours for the asking.

1836

LOBDELL UNITED COMPANY

WILMINGTON 99, DELAWARE A SUBSIDIARY OF UNITED ENGINEERING AND FOUNDRY COMPANY

1953

DORR CLARIFIER

PLUS EARTHEN TANK.



simple and economical approach to pulp mill waste treatment

If removal of settleable solids from large flows is your principal waste treatment worry, this is your combination for economy. A Dorr Clarifier installed in an earthen tank will give you substantial removals of suspended solids and effect reasonable BOD reduction as well - at a lower installed cost than any other available unit.

The principle of installing a Dorr mechanism in an oversized earthen basin has been thoroughly proven in sedimentation operations in many industries. And now . . . three Southeastern kraft mills are adapting it for waste treatment. These particular installations range in size from a 150'

dia. Clarifier installed in a 250' dia. basin to a 300' dia. unit installed in a 500' dia. tank.

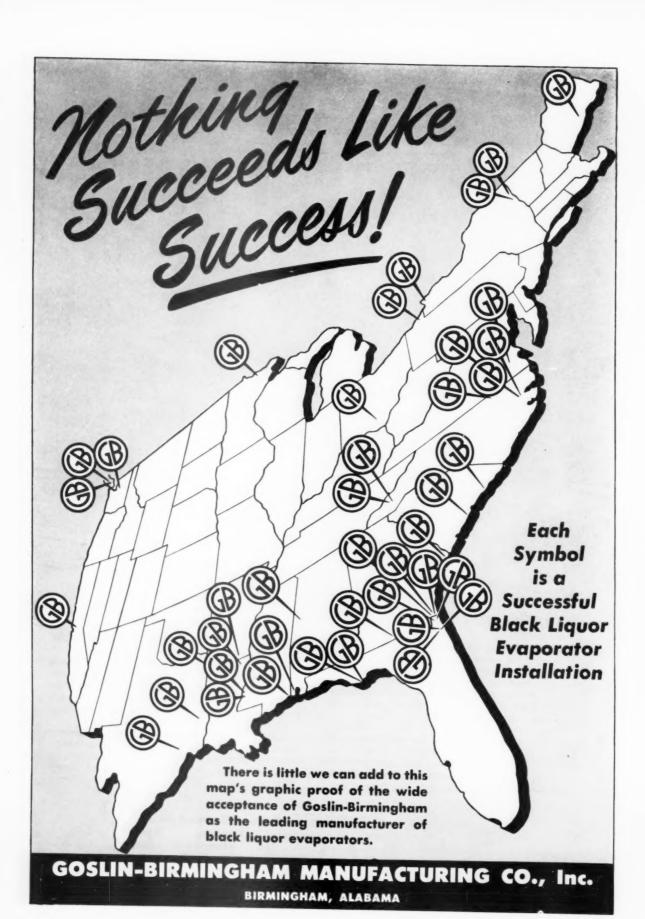
While the Dorr Clarifier-earthen basin team is suited principally for use as a primary treatment unit, it's a sound starting point for eventual complete biological treatment as well. Additional treatment steps can be added as needed, without affecting the initial Clarifier installation.

We'd be glad to talk to you or your engineers about the details of this low cost combination in terms of your own problem. No obligation, of course. Just write to The Dorr Company, Barry Place, Stamford, Conn.



THE DORR COMPANY . ENGINEERS . STAMFORD, CONN.

Offices, Associated Companies or Representatives in principal cities of the world



How to make packings last longer

Tips by Johns-Manville Engineers to help you keep production rolling



The old packing gives the clue to most packing failures...

I wos ruined by shaft misalignment. When old packing shows excessive reduction in cross-section directly beneath rod, shaft or plunger, bad alignment is indicated. Leakage usually occurs around top of shaft or rod. Cause may be worn bearings which permit shaft to whip.



Too much gland pressure did me in. Badly deformed rings next to the gland follower, with bottom rings in fair condition, suggest excessive gland pressure or improper installation. Excessive gland pressure sometimes causes packing to extrude between follower and rod or shaft.



Lack of lubrication made things too hot for me. If the wearing faces of the rings are dried out or charred, with the rest of the packing in usable condition, the trouble probably is lack of lubrication. Excessively high operating temperatures and wrong type of packing can cause similar symptoms.



I'm worn out because I turned with the shaft. Unusual wear on the outside circumference of the packing almost always indicates one of two conditions. The rings may be binding on the shaft and rotating with it, or the packing is too loose in the stuffing box and moving with the rod.



For all around paper mill use Johns-Manville Interlocked Rod Packing—Style No. 253

This is the universal paper mill packing—a process pump packing that is excellent for all around use in the paper mill. It has proved its superiority for packing Jordans and similar processing equipment. It is specially designed for service with water, washed and unwashed pulps, white water, and stock.

Because Interlocked is braided square, it lasts longer, has a better contact area and makes a tight seal with minimum gland pressure. Interlocked Style No. 253 is impregnated with a special lubricant that will not stain stock and is furnished ungraphited.





Your distributor will help, too! Your J-M Packing Distributor can help you take the guesswork out of packing problems. He carries complete stocks of Johns-Manville quality packings and can supply you promptly. For the address of the J-M Packing Distributor nearest you, write Johns-Manville, Box 60, New York 16, N. Y.

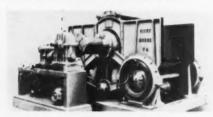


Johns-Manville PACKINGS & GASKETS

News and Notes from | | | |

EQUIPMENT AND SUPPLY COMPANIES

FRENCH MACHINES INTRODUCED



JONES-LAMORT HIGH FREQUENCY SCREEN (above) being introduced into North America by E. D. Jenes & Sons Co., with demonstration model at mill near Jones plant, Pittsfield, Mass. Originally patented by E. & M. Lamort Sons, Vitry, France, this screen has simple means of adjusting intensity of stroke without taking apart completely. Shock absorption mechanism is said to eliminate vibration on vat and foundation. No vibrating elements pass through stock. Drum size, about 40 by 40 in; .5 te 3.5 rpm.; vibrates at 1430 per min.; about 7 connected hp. E. D. Jenes also is introducing Lamort Cellular Filter for thickening of white or raw water.

BELOW—ENGINEERS in charge of developing French equipment: RICHARD E. BODETTE (left), appointed by

BELOW—ENGINEERS in charge of developing French equipment: RICHARD E. BODETTE (left), appointed by E. D. Jones & Sons, Pittsfield, Mass., to develop uses in America of Jones-Lamort Cellular Filter, originally patented by E. & M. Lamort Sons of France. Mr. Bodette was Beater Room Supt. 4 years at St. Regis, Deferiet, N.Y., and Beater Engineer 13 years at Consolidated Water Power & Paper, Wisconsin Rapids, in both cases responsible for water and recovery. NORMAN F. HOCK (right), appointed to develop American uses of the Jones-Lamort High Frequency Screen, another Lamort patented piece of French equipment brought across the seas by Jones. He was at Spruce Falls mill, Kapuskasing, Ont., for over 4 yrs. as Design Engineer and 7 yrs. as Plant Engineer at Alliance, Merriton, Ont.



PANALARM PRODUCTS, INC., Chicago 40, Ill., announces a new Panalarm Adapter Unit, which permits remotely located visual trouble signals to operate as part of a common, plant-wide audio-visual annunciator system. For further information write for Bulletin 3-C, Panalarm Products, Inc., 6312 N. Broadway, Chicago 40, Ill.

CARPENTER STEEL CO., Alloy Tube Div., Union, New Jersey, has announced that A. F. Wiest has been placed in charge of all manufacturing operations. The principal product of this division is stainless steel tubing.

HOOKER ELECTROCHEMICAL CO. expansion now under way at Tacoma, Wash., and the new chlorine-caustic soda plant at Muskegon, Mich., will add about \$60,000,-

000 "sales potential" in 1954, according to J. H. Babcock, vice president. Sales for 1952 were \$36,523,517, and in 1951, \$39,687,588. "We have our eyes on a \$100,000,000 sales potential," said Mr. Babcock. Hooker also has a new plant site at Vancouver, B.C.

E. C. WOLFERZ ALLOY EQUIPMENT, 20 Park Street, Belleville 9, N.J., announces a complete design and fabrication facilities for pulp, paper and rayon plant piping and fittings, also chemical plant equipment.

COMBUSTION ENGINEERING—SUPER HEATER, INC., 200 Madison Avenue, New York 16, N.Y., has shortened the company name to COMBUSTION ENGINEERING, INC. Stockholders voted this change at their annual meeting in April. At the same time the board of directors elected the following officers: Joseph V. Santry, pres., was elected chairman of the board and will continue as chief executive officer; Samuel G. Allen retired as chairman of the board but will continue as chairman of the executive committee; Martens H. Isenberg, executive vice pres., was elected president.

MINNEAPOLIS-HONEYWELL REGULATOR CO., Industrial Div., recently added twenty-five sales engineers to its field sales force, according to announcement from J. A. Robinson, field sales manager. The new appointees, all recent graduates from the company's industrial instrument training school in Philadelphia, reflect the long-range expansion of the company's sales organization to meet the increased complexities of the firm's industrial marketing problems, Robinson said.

THE BLACK-CLAWSON CO., Dilts Machine Works Div., Fulton, New York, announces the Dilts Model 15 continuous two-arm winder which is designed for either shafted or shaftless operation for continuous winding of relatively small diameter rolls at moderately low operating speeds.

FREDERIC A. SODERBERG, vice pressin charge of sales of Noone Div., KEN-WOOD MILLS (F. C. Huyck & Sons), Peterborough, N.H., says items incorporating new synthetic fibers may soon be available in more than experimental quantity for the pulp and paper industry. Mr. Soderberg pointed to development by the Noone Division of specially constructed filter blankets and cloths, fume house bagging, and textile machine clothing.

CHIPMAN CHEMICAL CO., Bound Brook, N.J., announces chemicals available in commercial quantities for use as debarking compounds and weed killers. Developed after long experimental work in conjunction with the American Pulpwood Association is their Atlas "A" debarking compound. The company also has a number of weed killers available.

D. J. MURRAY MANUFACTURING CO., Wausau, Wis., announces the new Murco-Mosinee Automatic Digester Stock Sampler which is used to obtain a sample of pulp from various levels in the digester instead of one particular level.

W. G. ROVANG, INC. announces a new catalog about Rovalves, prefabricated stainless and Monel valves. It provides complete, large-size photograph illustrations, detailed dimension charts, and information on each Rovalve model. Requests for Rovalve Catalog #15 should be addressed to W. G. Rovang, Inc., 1945 N. Columbia Blvd., Portland 17, Ore.

HERB BECK - BILL CAMPBELL

HERBERT W. BECK (left), has joined Morden Machines Co., Portland, Ore., manufacturers of Stock-Makers, Slush-Makers and Stuff-Makers, as Sales Mgr., according to Burke Morden, President. Mr. Beck was Resident Mgr. for National Aniline in Portland, Ore., and received his M.Ch. E. degree at Brooklyn Polytech.

WILLIAM W. CAMPBELL Jr. (right), whose election to Vice Pres. in charge of Sales of Lockport Felt Co., Newfane, N.Y., was announced by Pres. Raymond J. Lee. Mr. Campbell had been Sales Mgr. since August, was with Lockport since 1934.

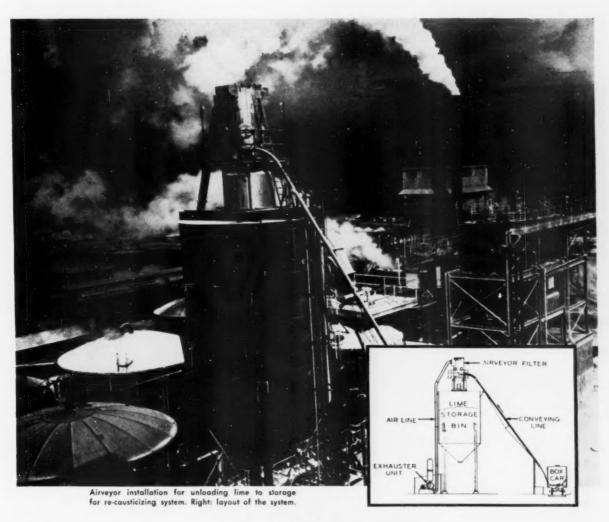




FOR BLACK-CLAWSON AND DILTS DIV.

R. F. VOKES (left), has been appointed General Mgr. of Dilts Machine Works, division of The Black-Clawson Co., and LAWRENCE A. (LARRY) MOORE (right) is a new member of the B-C family, joining the Engineering Dept. at Hamilton, O. J. D. Haskell, Exec. V.P., announced Mr. Vokes' promotion and said he would also serve on B-C Exec. Committee. R. L. Kutter, Gen. Mgr. at Hamilton, welcomed Mr. Moore, former Chief Engineer of American Coating Mills. He is a U. of Cincinnati grad. Mr. Vokes, graduate of Syracuse in pulp and paper, had been Asst. Gen. Mgr. of Dilts.





Paper profits come with ATRVEYOR, or RIEGEL PAPER MILLS

Profits in paper-making are on the rise at Riegel-Carolina Paper Mills, Acme, N. C. because Fuller Airveyors are cutting handling costs to the core.

This new 200-ton pulp mill is equipped with Airveyors for the bulk handling of process chemicals.



3 Airveyors are in use:

Unloading pebble lime for delivery to re-causticizing system as illustrated. (Handles 10 tons per hour.)

Unloading pebble lime and soda ash from cars for delivery to storage. (Handles 71/2 tons per hour.)

Unloading salt cake from storage and reclaiming from storage for delivery to the mix-tank in the Kraft mill recovery building. (Handles 71/2 tons per hour.)

An increasing number of important pulp and paper mills in all producing areas are finding new savings in Fuller Airveyor systems in handling raw paper-making materials. Each Airveyor installation is custom-tailored to fit specific handling requirements, determined in advance by Fuller engineers. Such service is yours without cost-may be an important factor in finding new cost savings. Write today for complete information.

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Dry Materials Conveying Systems and Coolers • Compressors and Vacuum Pumps • Feeders and Associated Equipment



RIVER RAISIN POWER PLANT

A STORY OF SAVINGS MADE WITH NEW INSTALLATIONS

A "picture story" that has been overlooked in this industry is the impressive modern power plant of River Raisin Paper Co., a mile and a half up that river from Lake Erie at Monroe, Mich., on the busy connecting highway and rail lines between Detroit and all Ohio points.

With this first extensive pictorial presentation of the power plant, it may be said it is "news" after its three and one-half years of operations because of the savings that have been achieved in that time. The savings were achieved principally by eliminating the use of condensing turbines and going to high pressure steam for better heat balance.

All of the four cylinder machines at this progressive paperboard company have been improved, up-graded and speeded up. Output since the war has been boosted 30 per cent to some 400 tons a day. A variety of chip, box and container board are made and there have been numerous innovations in its converting and finishing.

To effect all this expansion and improvement in the most economical way, a thorough-going engineering survey was carried out of the old boiler plant and the electrical power system in general. It revealed a number of ways of stopping losses, of loads that could be combined and of power applications that could be improved. Cummins & Barnard Inc., of Ann Arbor, Mich., carried out the survey and they designed the new plant.

Now with just one Wickes boiler of 180,000 lbs. steam per hour capacity, and

a Westinghouse 7500 kw. turbine, the mill is being run with proper heat balance. They replaced five old boilers, three turbines and two engine generators, which still did not produce enough power when they were in operation to carry the mill. The whole new power plant was based on replacing steam driven units with electric motors and includes two new Reliance Electric & Engineering 250 kw. 300 hp. motor generators installed for two of the board machines, which replaced steam engines, which had been over-loaded in use.

Since operating the new plant coal cost per ton of paper has been about \$6.30. Even with coal prices somewhat lower, it had previously been over \$10. Mainte-

CHARLES L. WOOD (left), President, and FRANK GRAY (right), Chairman of River Raisin Paper Co., Monroe, Mich.



(ABOVE) NIGHT VIEW of Power Plant of River Raisin Paper Co., Monroe, Mich., showing lighting of Wickes Boiler and portion of mill.

nance and labor is much less than it was.

The old boiler plant's five pulverized coal fired boilers with a capacity of 80,000 lbs. steam per hour each, operated at 170 lbs. psi. saturated steam with no air preheaters. The only mechanical draft was that produced by the primary air fans which were integral to the pulverizers. When a low grade of coal was used the pulverizers gave considerable trouble and often caused outages.

The electric power was generated by three turbines, a 2500 KW condensing, a 1000 KW condensing and a 1500 KW non-condensing, also, two 600 KW non-condensing engine generators. The two larger turbines generated at 4800 volt and the others at 480 volt. The condensing units together used approximately 80,000 lbs. of steam per hour with the circulating water being discharged to the sewer. The design of the non-condensing machines, which would not allow the exhaust pressure to be raised above 20 lbs. psi., limited the speed at which the machines could dry paper.

The new plant includes office, laboratory, locker room, a big turbine room, the boiler feed pump room. And outside is a new coal handling system.

The installation of the new boiler resulted in a decrease of 44.3% in Btu's per lb. needed for paper. Elimination of condensing turbines and cutting down other

4 th C-E Recovery Unit now in service at Union Bag and Paper Corporation

The Savannah, Ga. mill of the Union Bag and Paper Corporation is the largest integrated pulp-to-container plant in the world. Recently, another C-E Recovery Unit—the fourth—was placed in service in this plant. Like its immediate predecessor, it is designed to burn 1,050,000 pounds of black liquor dry solids per 24 hours.

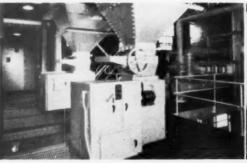
The identification of Combustion Engineering with the Union Bag and Paper Corporation covers a period of more than a decade and is a relationship of which C-E is particularly proud. Repetitive buying is the highest expression of customer satisfaction—and measured by the yardstick of repeat orders alone—the C-E Recovery Unit has an enviable record. Thirteen major pulp and paper companies have ordered and re-ordered C-E Recovery Units. One such company has re-ordered on four occasions. Three companies, including the Union Bag and Paper Corporation, have repeated three times.

Discerning buyers all, we believe it significant that they keep coming back for more.





TILE WALLED and glass-in offices of River Raisin Paper Co.'s Power Plant at Monroe, Mich., are at one end of turbine room. Down lighted corridor and to right are first, a laboratory, and next, modern locker room.



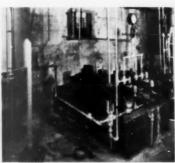
RIVER RAISIN PAPER CO.'s coal bunker outlet spouts and coal scales for new boiler plant with firing by spreader stoker. Permits burning low grade coal with low power requirements.



TOPSIDE OF POWER PLANT at River Raisin Paper Co., are induced draft fan and damper with two direct connected splash proof squirrel cage ELLIOTT CO. Motors.



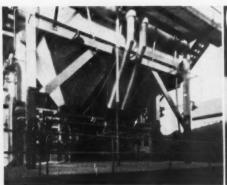
HAY ELECTRIC panel board is at right of this view of 7500 KW. Turbine in River Raisin Paper Co., at Monroe, Mich. The turbine can pass 180,000 lbs. of steam per hour through throttle at full extraction load.



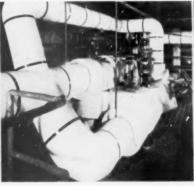
CHEMICAL FEED PUMPS for power plant at River RaisIn Paper Co. in Monroe, Mich. were supplied by 5 Proportioneers Inc. and are shown in this picture. Three are now in use.



BASEMENT BELOW WICKES boiler in River Raisin Paper Co.'s new power plant in Monroe, Mich., showing forced draft fans and sifting hoppers of the Wickes boiler.



REAR VIEW of River Raisin Paper Co.'s WICKES boiler showing fly ash reinjection system which returns cinders from dust hoppers under rear of boiler below FOSTER WHEELER.



COPES-VULCAN DIV., Continental Foundry 7
Machine Co. makes this 610# to 175# reducing station and desuperheater station as shown at power plant at River Raisin Paper Co., Monroe Mich.



VIEW OF PUMP ROOM in River Raisin Paper Co. Power Plant at Monroe, Mich. Boiler room motor control center and Copes feedwater regulator are in background.

heat losses reduced total steam needed. This reduced boiler room losses by almost 60%.

The new 7500 KW turbine has an inlet pressure of 600 lbs. psi. at 750° F. It has a 175 lb. controlled extraction and an uncontrolled extraction at approximately 75 lbs. The exhaust pressure is 30 lbs. at present, but is designed for 40 lbs., should the paper machines require an increase in pressure for drying purposes. The uncontrolled extraction is used to supply a closed feed water heater. This heater is to improve the heat balance in summer and increase the economizer exit gas temperature to prevent its dripping below the dew point at light loads. The turbine can

pass 180,000 lbs. of steam per hour through the throttle at full extraction load.

The generator is designed for 7500 KW at .7 p.f. 4800 volts. It is possible to generate 9375 KW at 87.5% p.f. The mill load has not approached this point. Twelve of the 16 engine drives used up to the time the new plant was installed have been disconnected. Others are used only as stand-by equipment. This has reduced the 175 lb, steam demand.

The new 4800 volt Westinghouse switch gear is of the metal clad, cubical type with roll out air circuit breakers. A bus tie breaker connects to the old 4800 V bus; three distribution breakers feeding

transformers at the various load centers; one station service breaker, and one breaker each for the induced draft fan and boiler feed pump which act as across the line starters. Two more cubicals are for the generator control and breaker.

The boiler is a four drum semi-outdoor bent tube type designed for 700 psi., 750° F. It has 19,500 sq. ft. heating surface including water walls and its rated capacity is 180,000 lbs. per hour. A welded steel casing covers the boiler with the roof of the casing about 10 feet above the boiler proper. This allows access to the safety valves and other mountings by way of doors in the casing. There is a brick lean-to on each side of the boiler at

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327 South LaSalle Street Chicago 4, Illinois

the firing floor extending to the rear of the furnace. This makes it possible for the operator to check fires at the side furnace doors without going out doors. All outdoor steam and water piping including the Diamond Power soot blower heads are steam traced with copper tubing spiralled around the valves and piping. During freezing weather steam is turned into the tracer lines which discharge through traps located in the basement where they can be checked for continuous flow.

The boiler is fired by a moving Detroit RotoGrate spreader stoker with continuous ash discharge. Its six 27 in. feeders are each driven by a Louis Allis motor through a clutch to allow changing shear pins without stopping more than one feeder at a time. The active grate area is 370 sq. ft. and discharges at front of furnace. Stock Co. provided coal scales.

A complete fly ash reinjection system returns cinders from dust hoppers under the rear of the boiler below the Foster Wheeler economizer and the dust collector discharge. A Buffalo-motor driven fan returns cinders to the furnace by Detroit Stoker's reinjector system. The Aerotec dust collector is a multiple tubular type with efficiency of 95% when handling dust that has a maximum of 10% in 0 to 10 micron range.

The spreader stoker not only burns low grade coals, and trip-mine coal from Ohio, successfully, but has low power needs and clinkering is small. Maintenance costs are low and main ash handles easily. Notable advantage is roominess around new installations which makes less cramped operation and improves safety factors.

With coal averaging 12,100 BTU per lb., the average efficiency of the boiler has





ARTHUR GOETZ (left), Executive Vice Pres., and H. R. McGOVERN (right), Vice Pres., Manufacturing, River Raisin Paper Co.

been 84%. Some of the coal burned during this period tested as low as 10,400 BTU per lb. and was very dirty and wet. The boiler has also operated as low as 25,000 lbs. per hour without difficulty. The fuel has higher moisture and ash content than the old boilers could possibly have handled and a less expensive coal reduces costs.

An American Blower forced draft fan is in the basement and has inlet vanes operated by the Bailey combustion control. The high and low pressure over fire air fans are also located in the basement. The American Blower induced draft fan located outside above the boiler is driven by either one of two direct connected splash proof squirrel-cage Elliott Co. motors.

The main drive is a 350 h.p., \$00 r.p.m., 4800 Ellistt motor, required because induced draft can reach 116,700 cu. ft. of air per minute. The auxiliary drive, used for starting up or light boiler loads is a 50

h.p., 450 r.p.m., 440 volt motor. The induced dampers are also operated by the combustion control. A 78 in. diameter steel stack extends 44 ft. above the fan opening and is supported from the boiler steel.

Two Copes-Vulcan Div., Continental Foundry & Machine Co. reducing valves make up any intermediate or low pressure steam requirements not supplied by the turbine. The 175 lb. valve can reduce 180,000 lbs. per hour of 600 psi. 750° F. steam to 175 psi. steam. The 30 lb. valve can reduce 80,000 lbs. per hour of 175 psi. steam to 30 psi.

A spray type desuperheater reduces the temperature of the steam from the turbine extraction and 175 lb. reducing valve to 350° F. Beiler feed water direct from the feed pump is used as the desuperheating medium. Should the temperature exceed a set point, an alarm Continued on page 113

RIVER RAISIN PAPER CO., facing its loading track at Monroe, Mich. Its modern boiler plans with Wickes 180,000 lbs. per hr. boiler is in background, showing up between the two high stacks.



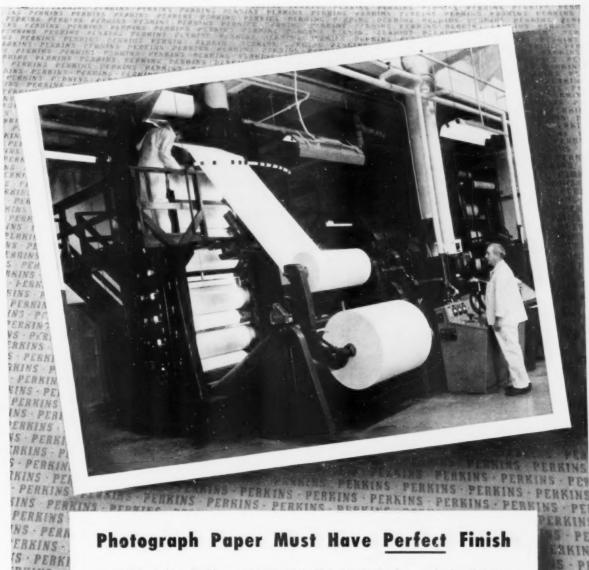
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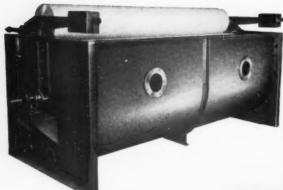
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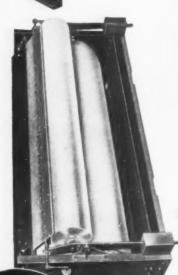
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VIEW OF END AND INTAKE SIDE OF COWAN DECKER

> VIEW OF EFFLUENT DISCHARGE END FROM INTAKE SIDE



TOP VIEW SHOWING

RUBBER-COVERED

COUCH ROLL AND 48"DIA.—

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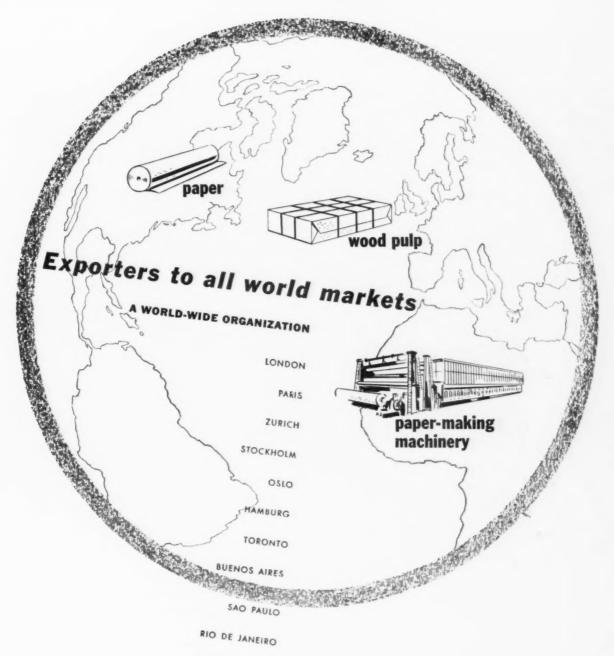
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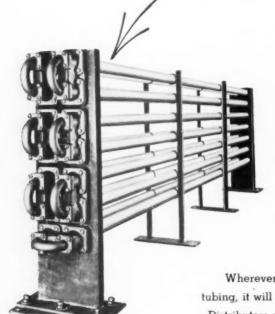
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Carpenter Stainless Tubing KEEPS PROCESSES GOING ON SCHEDULE



Modern heat exchanging equipment like this heater/cooler used in a large Wisconsin paper mill has to stay on the job. You can't afford to interrupt a process for hours or days to replace tubes.

That's why the manufacturer of these units selected Carpenter Stainless Tubing, Type 316.

In addition to providing good resistance to the corrosive effects of sulphite waste liquor, Carpenter tube quality and uniformity help to make the 20th unit as good as the first.

Wherever a product or process involves corrosion-resistant tubing, it will pay to put Carpenter experience to work for you.

Distributors are located in principal cities from coast to coast.

The Carpenter Steel Company, Alloy Tube Division, Union, N. J.

Export Dept.: The Carpenter Steel Co., Port Washington, N. Y. "CARSTEELCO"



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RIVER RAISIN POWER PLANT

Continued from page 108



GERALD HAGE (left), Chief Power Engineer, River Raisin Paper Co. J. FUKO (middle), Chief Chemist and Supt. of Quality Control. WILBER ETTER (right), Personnel Director.



MEL KNACK (left), General Mill Supt. and Director of Engineering at River Raisin. HARRY LAMB (middle) River Raisin's veteran Director of Production who was Supt. many years. CLARK GALLAGHER (right), Maintenance Supt.

warns the operator and at a higher temperature point the 175 lb. reducing valve is automatically closed.

Two boiler 5-stage feed pumps, one, motor-driven and the other steam driven, were from DeLaval Steam Turbine Co. In pump room equipment, an Elliott 350 hp. motor drives one pump and a De-Laval turbine drives the other.

The make up water is softened by automatic sodium and acid-zeolite softeners. The water flows through each softener, is blended, degasified and then stored in a soft water reservoir. From the reservoir it is pumped to the deaerating heater by 2 vertical Fairbanks Morse well pumps. The phosphate is fed directly to the boiler drum and sodium sulfite to the deaerating heater outlet. Three chemical feed pumps were from Proportioneers, Inc.

PERSONNEL

Charles L. Wood, president of River Raisin Paper Co., is a native of Kokomo, Ind., and his father and grandfather were papermakers there. The father, G. H. Wood, founded River Raisin Co. in 1910.

Frank Gray, one of the founders of the Williams-Gray Co. of Chicago is a former president of River Raisin—now is chairman.

Arthur Goetz, executive vice president. Formerly vice president in charge of purchasing (1947-1951). Born in Monroe, educated there and at Springfield College in Massachusetts and joined River Raisin in 1922, so this is his 30th year.

J. W. Walter, vice president, secretary



NASH ENGINEERING COMPANY 422 WILSON AVE., SO. NORWALK, CONN

and treasurer. Came to River Raisin in 1921 when it bought Monroe Corrugated Box Co., with which he had been affiliated.

H. R. McGovern, vice president for manufacturing. Came up in the company on the converting side. He was general superintendent of its three container plants till last year. He joined the company in 1921.

Robert V. Hodge is vice president for sales. He has been with the company many years.

Harry Lamb, director of production. Was born near Kokomo, Ind., and was with the Woods there, at American Strawboard Co. He moved to Monroe 40 years ago, working up on machines to be superintendent for many years.

Mel Knack, general mill superintendent and director of engineering. Was born in Oklahoma, and graduated from the University of Michigan in chemical engineering in 1931.

Clark Gallagher, maintenance superintendent. Was born in Illinois, has been in paper for over 18 years. He started out in refractory quarries in Ohio and then got



MOVING-TYPE DETROIT spreader stoker with continuous ash discharge in use firing boiler in power plant of River Raisin Paper Co.

into the paper industry.

Gerald Hage, chief power engineer. He is a former Wisconsinite and graduate of University of Wisconsin. His father was electrical engineer at Nekoosa-Edwards

Paper Co.

Wilber "Wib" Etter is the personnel director and athletic director in charge of recreation work.

J. Fuko is chief chemist and superintendent of quality control and has been with River Raisin for several years.

A. W. Schulte is general sales manager. E. F. Hochradel is director of purchases.

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We can place—Managers, supts., asst. supts., for night and day positions in mills making rag content, fine papers of every description, tissue, lightweight sulphites, roofing felt, wet fibreboard, Cylinder machine board and carbonizing tissue; industrial relations—personnel manager. Master Mechanics: construction, plant, mechanical, electrical and project engineers; designers and draftsmen; training supervisor; coating technician; finishing foreman rag content and fine writing papers.

technician; Inishing foreman rag content and fine writing papers. Chemists, chemical engineers and laboratory men for mills, also for demonstrating and selfing; Cylinder, Fourdrinier and Harper machine foremen, machine tenders and back tenders; beater engineers and color men; salesmen.

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POSITION WANTED—Supercalender Superintendent, now employed, desires position with a progressive Company that needs a man with a thorough knowledge of wide, modern supercalenders, rewinders, and cutters. 17 years experience on machine coated papers. Cost conscious and capable of high-quality production. Prefer middle west or West Coast. Best of references. 41 years of age. Reply Box 150, PULP & PAPER, 370 Lexington Ave., New York 17, New York.

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U. S. Navy Awards Contract To National Starch

The U. S. Navy has awarded National Starch Products Inc. a contract for "further research and development work to produce an improved adhesive for the bonding of palletized unit loads; to make a study and evaluate the acceptability of adhesives now being manufactured for palletizing; and to investigate and develop improved methods of adhesive application so as to extend the use by Armed Services and industry of this efficient method of handling and shipping supplies."

Eastwood-Nealley Vacation

The Eastwood-Nealley Corp., Fourdrinier wire and wire cloth manufacturers, will close most manufacturing departments for vacation July 25 to Aug. 10. During this period there will be no regular shipments of wire or wire cloth; however, the office, sales and engineering departments will remain open.

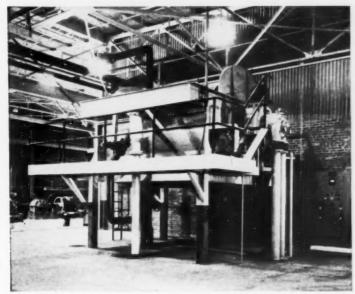


One Deculator leads to another literally. In this case one large paper manufacturer, after experiencing the benefits to both operation and product gained from one installation, has continued to order additional Deculators

until now there is a total of 13 units either installed or on order. We'll gladly explain to you the benefits responsible for this increasing use of the Deculator.

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*Photograph courtesy

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because of this, is ideal for very large paper machines and certain high speed machines where excessive volumes of white water are involved. Several mills with special problems

are now using it. Both Olivers and Americans are described fully in our Bulletin 701-R.

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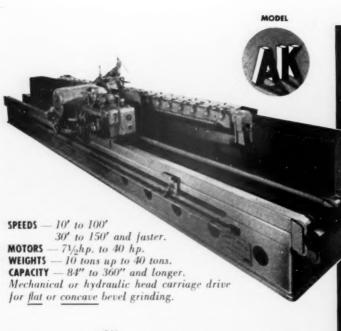
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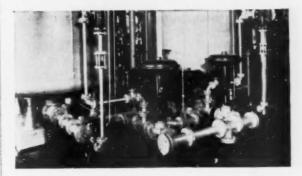
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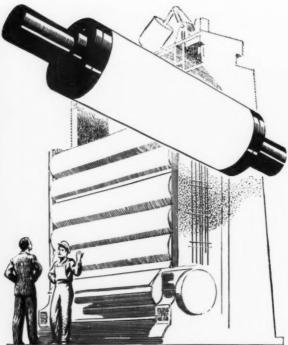
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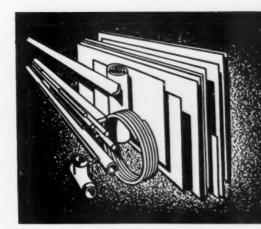
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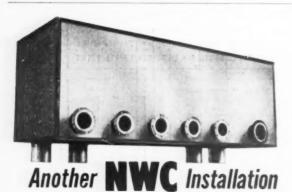
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